

# INDUSTRIAL-ARTS MAGAZINE

Incorporating: HANDICRAFT and the ARTS AND CRAFTS MAGAZINE

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Published Monthly by

THE BRUCE PUBLISHING COMPANY, Milwaukee, Wis.

Established 1891

FRANK M. BRUCE, Publisher

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## OFFICES:

Home Office: 354-364 Milwaukee Street  
Milwaukee, Wis.

New York: 1 Madison Ave.

Vol. VII

OCTOBER, 1918

No. 10

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The subscription price of the *Magazine* is \$2.00 per year, payable in advance. Postage for Canadian and Mexican subscriptions, 35 cents; for foreign countries, 50 cents. Single copies, not over six months old, 25 cents; more than six months old, 50 cents. Notice for discontinuance of subscriptions must reach the Publication Office in Milwaukee, at least fifteen days before date of expiration, with full balance due to date. Notices for changes of address should invariably include the old as well as the new form of address. Complaints of non-receipt of subscribers' copies cannot be honored unless made within fifteen days after date of issue.

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The Board of Editors invites contributions of all kinds bearing upon the Industrial-Arts Education, Manual Training, Art Instruction, Domestic Science, and related subjects. Unless otherwise arranged for, manuscripts, drawings, projects, news articles, etc., should be sent to the Publication Office in Milwaukee, where proper disposition will be made. The Board of Editors meets once or oftener each month in Chicago, and all contributions submitted are given careful attention. Contributions when accepted are paid for at regular space rates. In all cases manuscripts should be accompanied by full return postage.

The Industrial-Arts Magazine is on sale at Brentano's, 5th Ave. and 27th St., New York City; John Wanamaker, Market St., Philadelphia; A. C. McClurg & Co., 218 S. Wabash Ave., Chicago.

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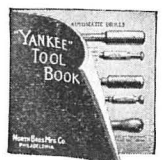
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## THE OTHER SIDE

E. E. Sheldon, Supervisor of Apprentices,  
The Lakeside Press, Chicago



VOCATIONAL education, vocational guidance, industrial education, half-time schools, trade schools, continuation schools, and recently vestibule schools are all receiving much attention and the discussions as to the best methods of installing and the proper administration of schools to better prepare pupils to earn a living and to live occupy much time at meetings and conferences and much space in the public print. The subjects are all important and demand the time and the attention that is being given them. While the public schools have been considering these subjects there has by necessity developed a system of education in office and factory known as corporation schools that has received but little attention except by those directly interested. For like all factory systems, it is there for a purpose and the test of its efficiency is the product. That meeting the demands of the management, insures the corporation school a place as part of the general system of the office or factory until such time as either changes or conditions demand further improvements in the interest of increased efficiency. Then the school must meet the new and changed conditions or go to the "scrap pile," for modern scientific factory management neither tolerates nor considers any machine or system that cannot be maintained at one hundred per cent efficiency.

The corporation school is to supplement the public school, and its function is to continue the education of the young worker and adjust him to his work, for in modern factory systems where can the young worker be taught except in special training classes maintained by the system that is to be benefitted by the increased efficiency of a trained workman?

Many of us have spent years viewing the factory from the outside, some of us have spent some time looking out from within. As the views are vastly different, let us consider the individual. Factory methods, possibly school methods, lose sight of the individual and make for the machine. This must not be. The boy in the factory must be more than a small cog in a large wheel, part of a great machine.

You as teachers must go over into the factory and with a kindly helping hand assist the boy to adjust himself to his new environment until such time as the school and the factory can and will co-operate, and even then the teacher must go with the boy during the most critical period of his early years.

From the inside looking out, one sees boys at work short hours, five days a week, ten months a year, under constant and close supervision with some one to take all responsibility. Inside the factory, the hours are long, six days a week and twelve months a year with possibly a short vacation. The factory demands one hundred per cent efficiency. The school accepts 75 per cent. Orders are given to be carried out and are not repeated.

Time has a value and is paid for, material is not furnished by the public, it is charged to the department and must be accounted for. These are all new to the boy inside the factory and he cannot adjust himself to the conditions, is "fired," and then pretends to hunt a new job and is fearful lest he find one.

The factory school is a typical part-time school and is established to teach right methods of work. The habits of work once formed are hard to change, hence it is necessary that correct habits be formed in order that no time shall be lost thru false motions. Looking out from the factory one sees that the habits of work being formed are of much more importance than the work being done, and the crime of wasted effort thru loss of time, false motions, lack of proper arrangement of tools and materials has much to do with the low efficiency of young workers, as they enter the factory. The time element should enter into all work and records should be on a time basis and, as no poor work should be accepted under any conditions, the time element will have much to do in securing better work and in fixing correct habits of work.

The rewards for faithful effort must be such that all may share equally in whatever the incentive may be for equal effort. The school can and must teach the value of time and of material and the product must have a value, whether in classroom or in shop. Product intended for waste-basket or for scrap heap offers but little incentive to do real work in a live way.

A messenger service lacked something to make it a real service. The amount of pay did not count for much. Some special incentive was needed and a bonus plan on a percentage basis was worked out and put into effect. A bonus of five cents per trip for one hundred per cent efficiency graduated down to one-half cent for 55 per cent efficiency soon led the boys to comprehend what service is really for. A boy one hundred per cent efficient on 30 trips receives \$1.50 reward, while the boy 55 per cent efficient re-

ceives only fifteen cents. The boy who receives only fifteen cents reward begins to think about the why of it and wonders if it really pays to pocket car-fare and "flip" a wagon or loiter on the way to let the other fellow get back first.

Modern methods demand service. Factory management must be such that service can be given. In order to give service the entire system of a factory must work in harmony and have a definite end in view, and some one must see to it that the product is delivered on time and that it is up to the standard. In the school there must be a standard and efforts must be made to determine the line of work suited to the individual, whether he works to advantage with large or small units, whether he is willing and able to attend to details, his power of initiative and the probable training he will be able to receive. These facts being determined it might be possible to give the individual a little vocational guidance that might be of some value to him. One must know the needs and the desires of the individual before presuming to attempt to guide him into a vocation—too often the only reason for entering a certain line of work is the salary reputed to be earned by some acquaintance of the parents, or it may be a nice job, a clean job, or short hours, everything except the thing that should decide. Once decided upon proper data, all efforts should be made to direct the individual along lines that will lead to success. The work of the school must be correlated as good English must be demanded in the mathematics classes as in the English classes, and design must be the foundation in all classes. The drawing teacher can do good work in the English classes by teaching margins, spacing and arrangement and her time in the manual training classes would make applied design real.

Printing as an industrial subject, entirely apart from a vocational subject, offers a training in the field of manual arts that should make it a part of every course. The attention to detail required by a course in printing makes the training of especial value, but let me be not misunderstood. There is good training in any manual arts subject, if the training be thoro. But, if poor work be accepted in any line, the training is not only poor training, but leads to the formation of bad habits that are hard to break.

The work in English, mathematics and design can easily be correlated with the work in printing and better work be done in each subject. All work in any subject should be done to conform to the principles of good design and accurate work, with a reasonable speed attained as the worker progresses.

Let me be clearly understood, I have in mind printing as a fine art where there are training values in all the elements of good design and accurate English. There is no particular training, nor virtue, in being able to place on end a few pieces of battered, broken, antiquated types, smear them over with a cheap compound, called ink, and take a bad impression,

wrongly placed on a nondescript piece of paper and call it printing. Indeed, there is more danger in attempting to teach printing as a manual art than in any other subject that has as yet been attempted in the schools. The ease in which duplicates of the work can be produced and scattered broadcast leads to the formation of low standards in a subject that is a fine art and as such should receive the study and attention that it deserves and did receive in its infancy.

Printing today ranks sixth among the industries in this country. The products vary from the beautiful hand-made volumes produced by craftsmen who hold to the best traditions that the handicraft age bequeathed to us, to the ephemeral publications, catalogs and circulars produced on a tonnage basis in great manufacturing plants operated by hundreds of machine operators, none of whom knows anything of the history or traditions of printing as a fine art. There is danger in the conditions that exist, that our inheritance will be lost and printing as a fine art will degenerate until we will become content with the commonplace and accept it as the best.

The history of printing should be a part of every course in art in our schools, and the names and works of the master printers should be as familiar to our students as those of the great artists. The beautiful manuscripts, volumes of the middle age laboriously produced by hand with rubricated initials and decorative designs should be studied to show the causes that led to the invention of printing and the sources of the early type designs.

The names of Gutenberg, Aldis, the Elzevirs, Plantin, Jenson, Caxton, Bodoni and Caslon, together with their marks and masterpieces, should be familiar to all of our students. The influence of Morris, Franklin, Thomas and DeVinne upon typography, should be within the knowledge of all. The type faces designed by the great masters should be familiar to our students and they should be able to recognize them as used in printed matter, and to know wherein lies the strength or weakness in design, always remembering that type is made to read. A caslon type face should be as familiar to our students as are other works of art.

Every course in art should have as part of the regular work, studies in samples of printing, critical studies in design, arrangement, color (from the standpoint of the printer), harmony, contrast, balance, margins, appropriateness, until finally every student is able to pass judgment upon the quality of a piece of printed matter, be it a letterhead or a volume de luxe.

With art as a basis and a deep-seated conviction in the eternal fitness of good models as the best silent teachers and the ability to firmly refuse to be stampeded into turning out product to the neglect of training, one is safe in selecting printing as a manual art, if sufficient funds are available to equip a shop in a well lighted, properly ventilated room.

On no other basis should one attempt to teach printing for any training values. Dr. Hamilton says: "To put boys in an ill-equipped room, using antiquated methods, unbusiness-like practices, and badly chosen material is conducive to no good end. Such a situation cannot be saved by the best of instruction." With two or three series of carefully designed, well-cut roman types, the necessary material equipment to complete the shop and a small job press one can do excellent work that has training values. Dr. M. V. O'Shea has said: "Some day we shall give more attention than we do now to the aesthetic character of school books, tablets, illustrative material and all other apparatus of the school. In my opinion a child who uses a reading book of artistic make-up derives more cultural value therefrom than he would from all the pictures that could be crowded on the walls. Great as may be the influence of a fine picture upon the wall, it cannot equal that of the thing with which the individual is in vital contact every moment, and which he employs as a means to the accomplishment of his purpose."

One must need sympathize with the unfortunate teacher of printing who makes every effort to train pupils to do good work, but is expected, yes, almost forced to attempt to run a job shop and get out blanks for the office, reports and even a weekly school paper, to say nothing of the little jobs, letter-heads, cards, and what not for the friends of the powers that be, and to do it all with immature, inexperienced children with but a few hours or weeks of elementary training and then get the blame for the quality of the product.

Printing taught for training values means that no product should be permitted to leave the shop, except as samples of children's work and then not be scattered indiscriminately unless it conforms to the standards of printing as a fine art.

The other extreme is the work done by older hands and given as the children's work. One can have but little patience with pretended teaching in the woodworking shops of a lumber town where the teachers rather reluctantly admit that the exhibit pieces presumed to be student work were all machined over at Blank's factory, but were assembled by the students.

We must teach our students to have high ideals and definite standards and where can it be done to better advantage than in the shops when we refuse to accept any work except the best the student can produce thru his own efforts properly guided? Even in corporation schools we must carefully differentiate between teaching and commercial work and never allow the latter to displace the former even in the guise of teaching. Commercial work properly administered, when based on careful fundamental training, has high educational values either in school or shop. All work done should be held to good commercial standards, tho it restricts the range and

quantity of work done, for one cannot afford to allow a student to attempt work beyond his ability and later have him suffer the consequences of the bad training that results.

So much for printing as an industrial subject. As a vocational subject the question arises: Where shall the teaching of printing be done? The preliminary work may be taught in school apart from the factory, but with a factory atmosphere. Much of the teaching must be done in the factory under factory conditions—jobs must be delivered on time and be according to specifications. Where can this be done but under commercial conditions? Who shall do the teaching? Certainly the practical craftsman, who has been trained to teach, be he in school or in shop as instructor. I believe that one is safe in saying that no one unable to earn a living at the trade, should presume to attempt to teach a trade. It is not theory that is needed, but ability to show how the work is done that is demanded of the trade teachers. It is a much simpler problem to teach a craftsman to teach than to teach a teacher the trade. We are very liable to underestimate the training one receives who learns a trade thoroly. We are apt to measure teaching and training values in terms of books.

Academic teachers have a legitimate field in a factory handling the boy problem and welfare work, but as teachers we had better confine our efforts to the things we know and not attempt to teach a craftsman his trade; he may have spent as many years in close study, altho in other lines, as his so-considered more fortunate brother who completes a course in higher education.

In answer to "What is good printing," can we not accept the views of men whom the trade considers masters of the art?

Before considering the book, let us study the principles that apply to the simple forms of work from the business card, or folder, to the more elaborate piece of advertising, and in each case we will find a different problem but all based on good design as the basis of art, and no amount of general knowledge will solve the problem, as each case must be treated in a different manner, depending upon the fundamental principles involved, including size, use and expense involved. The author of *The Printed Book* says of the Modern Book:

The chief factors which influence the appearance of a printed page are the design of the type and its arrangement upon the page. The ideal type for a book that is intended to be read should be so designed that the act of reading may be as nearly as possible unconscious. It should have a reposeful but sufficiently firm effect, carrying the eye smoothly along without any distracting features. The letters should so occupy the spaces allotted to them that they lose their individuality and continue closely into compact words; any characteristic which produces a thorny or dazzling effect should ruthlessly be suppressed. Many of the types of special design exhibit some eccentricity, often in but one letter, which attracts attention and mars the general appearance. The lower case "e" is a frequent sinner in this respect by reason of the angle at which the cross-bar is tilted; and the tail of "g" is a troublesome problem.

It would be invidious to exemplify these weaknesses, but those who have examined these types will readily recall instances.



The preponderating use of roman type is evidence of its superiority for general purposes. Most modern fonts of this letter follow either the Caslon or Jenson model. The former has the long letters tall in proportion to the body of the type, and this gives the lines a more open appearance than in the Jenson Style, which usually has a larger faced character with less difference in height between long and short letters, and the lines thus seem closer together. The appearance of a printed page is also largely affected by the size of the type, the distance between the lines, and the spacing between the words. In the early part of nineteenth century a comparatively small-faced type with a liberal amount of space between the lines was in favor. A century later the tendency is to the other extreme, and we now frequently see a large-faced type, the lines set closely together, and narrow spacing between the words. Occasionally, the customary breathing space after a full stop is so contracted that the break is hardly greater than between the words of the sentences; and, sometimes, even the paragraph is abolished, and, instead, a small ornament is inserted in the line at the point where the new paragraph should begin. All this may produce an artistic effect, preserve "the color of the page" and so forth; but it is fatiguing and tiresome to read. The eye is so much occupied in deciphering the words of the print that the mind is not at full liberty to grasp the meaning the words are intended to convey. A book is much pleasanter to read if the words are sufficiently distinct not to require a sustained effort to disentangle them, and if the lines do not crowd upon each other but are clearly enough defined to be followed with ease. The spacing should correspond in some degree to the natural intervals observed in reading aloud. Good spacing, like good punctuation, is an aid to ready comprehension of the subject matter, and may be likened to phrasing in music.

Certain established features of the printed book, such as title page, head-lines, and pagination, which were adopted in the course of its development, were doubtless the outcome of considerations of convenience.

#### The Construction of a Book.

In setting out to convert the manuscript copy of any work into a printed book, a number of questions at once arise. Chief among these are the format (shape and size) of the book; the kind of type to be used; and the quality of paper; the illustrations, if any. One of the initial questions is, what shall be the format of the book? Many considerations go to the settling of this important point. The use to which the book is intended to be put; the subject matter; the extent of the manuscript; and even the illustrations if any, which are to accompany it, or frequently which it is to accompany. Since the terms "page" and "leaf" are occasionally confused, it may be observed that a page is one side of a leaf, and a leaf may therefore have two pages printed upon it, one on each side. The first page of a leaf, the right-hand page of an open book, is called the recto of the leaf, and the second page, the left-hand page of the open book, the verso. When every page is numbered, the book is said to be paged; but when a number is given to each leaf only the book is said to be folioed. The selection of the type to be used for a book depends in great measure upon the size of the page and the amount of matter contained in the work. If the book is very long it may be necessary to use a small type in order to keep it within the desired compass, and other considerations will have to give way; but in many cases the choice is unhampered by this condition. To make a presentable book—one that shall in the general appearance of its page satisfy the eye, and at the same time be comfortable to read—the size of type must be carefully considered in relation to the size and shape of the page. The length of line, the number of lines to a page, and also the relative proportions of the margins have to be studied. The main thing to be aimed at is legibility. Too long a line of small type is trying to the eye, both in following the line and in picking up the next; while large type closely crowded gives a confused effect and is almost as bad. The proportion of the margins on the four sides of the printed page has an important influence upon the appearance of book. These proportions are not equal, and they are not haphazard. If all the margins were of the same width, the printed page would appear to be both nearer the outer edge and lower down than its actual position, as if the print were slipping off the page. Experts in such matters tell us that the esthetic unit is not a single page, but that the two pages shown in one

opening must be taken together, and that the margins to be of correct width should be in the following relative proportions:

Upper, 1; lower, 2; inner, 3-4; outer, 1 3-4.

When the lines of type in a page are set close together without any space between them, they are said to be "solid." Sometimes the lines are slightly separated by means of thin strips of metal, called "leads," placed between them; the type is then said to be "leaded." A moderate-sized type leaded is often pleasanter to read than a large faced type set solid; the votaries of the book beautiful would probably declare for the "all-overish" appearance of the larger type. A page of leaded matter contains fewer lines than a similar page of solid matter.

Mr. Theodore L. DeVinne wrote as follows:

"The average journeyman does not appreciate the skill and experience required for the best plain printing. He does not appreciate the superior beauty of a well-cut face of Roman type over an ornamental form.

"It would be a wise thing in schools of typography to have a young man study carefully the books that have been printed by the great printers of the world from Nicholas Jenson to Charles Whittingham. No doubt he will find in any and all of these books some peculiarities to which exception can be taken, but if he studies long enough and close enough, he will see in

The blackness of the ink,

The readability of the type,

The simplicity of the arrangement, and

The general adaptation of printing to the subject, features which he but rarely finds in good modern work. A young man should be trained to do ordinary things well before he attempts to do what is difficult or eccentric. Educated people all over the world look upon a good book as the highest triumph of typographical art, and its merit is always gained by its simplicity.

"The last thing to learn is simplicity.

"To make a thoroly good book out of a lot of jumbled manuscript; to select a type appropriate to the subject; to determine its size so that it shall be suitable for the matter in the book; to determine a page so that it shall be in fit proportion to the margin; to correctly determine by graduated size of type the relative importance of extracts, letters, poetry, notes, preface, appendix, index, etc., to use paper, bindings and lining papers so that they will be suitable to the print; to space lines neatly; to regulate blanks (whites) properly, so that any reader can see at a glance that the whole book is the work of a disciplined hand and in educated taste, and that proper subordination has been maintained in all the little details, from the space between the words to the margins around the page; these I think, call for more of skill, more of experience than are to be shown in the most difficult pieces of ornamental typography; I have said nothing about the difficulty of keeping even color and exact register, and absolute cleanliness in presswork.

"I might go on and enlarge this very much, but if any amateur or novice in typography thinks that the printing of a good, plain book is a simple matter, let him try. A year of experience will make him a sadder and wiser man."

And finally, as Mr. Henry L. Bullen of the American Type Founders Library says, "Shakespeare hits the nail on the head:

"To business that we love we rise betime,

And go to't with delight."

Enthusiasm is an important factor in success, especially in an occupation so complex as printing; but how can one who is ignorant of the history of his occupation have a deep-seated, impelling enthusiasm? Enthusiasm must be based on fine sentiments, which a mere dollar goal never cultivates. When a youth is taught or learns to reverence his work, he will be a better printer and citizen. I have known quite a number of master printers who were (or are) imbued with reverence for their work, and all have been more successful for it.

**Buy War Savings Stamps.**



# WAR-TIME ACTIVITIES IN THE SCHOOLS

Bonnie E. Snow and Hugo B. Froehlich

"Your Uncle Sam is calling, now, on every one of you;  
If you're too old or young to fight, there's something  
you can do.  
If you have done a bit before don't let the matter rest,  
For Uncle Sam expects that everyone will do his best."

"It makes no difference who you are, or whence you  
came or how.  
Your Uncle Sammy helped you then and you must  
help him now.  
Your brothers will be fighting for your freedom over  
there,  
And if you love the Stars and Stripes then you must do  
your share."

**T**HE children are singing it, the teachers are thinking it, the schools must respond to it. "What are you going to do for Uncle Sammy?" Every patriot, young or old, rich or poor, sick or well, high born or lowly, is conscious of a great and insistent desire to "help the Boys." In the schools our well regulated and long established courses of study which hitherto have moved like clockwork, checking off recitation, examination and graduation with little heed of the practical things of life, have collapsed like houses built of cards. Great waves of public sentiment have swept aside that which was of vague or doubtful value, demanding that the schools like every other department of public service should function in immediate and definite contribution to the country's needs.

The times have forced us to the swift accomplishment of aims and ends which before the war were slowly formulating in our minds. Our sewing teachers have discovered that the country needs their services and the services of the children under their instruction. Millions of garments are needed for soldiers in camp, in the army and in hospitals; garments for destitute children and women; garments for the needy families of soldiers here at home. After the war will the sewing teachers remember that there

are always hospitals to be equipped and maintained, destitute and friendless children to be clothed, and that the ordinary garments worn by all children must be made, mended and cleaned? During the past year our cooking teachers have been forced to study new problems in food conservation, problems in the uses of substitutes for flour, butter and sugar, and the great problem of stretching a dollar "over the top" of soaring prices. Will the cooking teachers remember, after the war, that the ordinary American family must still practice food conservation, economy in home management, and the elimination of waste? The war has forced the manual training teachers out of the narrow confines of a course of study in which coat hangers and tabourets formed the principal items, and has set them to making Y. M. C. A. equipments for camps, reclining chairs, bedside tables and cots for hospitals, with benches and a hundred other articles for the soldiers' use. After the war will the manual training teachers remember to plan their courses upon the basis of service rather than of theory? Even our art teachers have been aroused from complacent contemplation of their annual exhibitions of flower studies, landscapes and abstract designs, and have been forced into the making of posters for War Gardens, posters for Liberty Bonds, posters for War Savings Stamps, posters for Red Cross drives, posters for Army and Navy enlistment. After the war will the art teachers remember that the need of publicity thru advertising is an ever present one, and will they welcome these opportunities to prove the practical value of their departments? Will they continue to make art function in the every day needs of the people? Let us profit by the lessons that the great war has taught us,—the lessons for which we have so dearly paid!

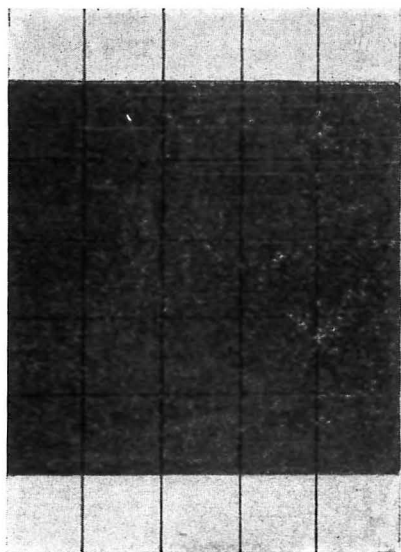


Fig. 1.

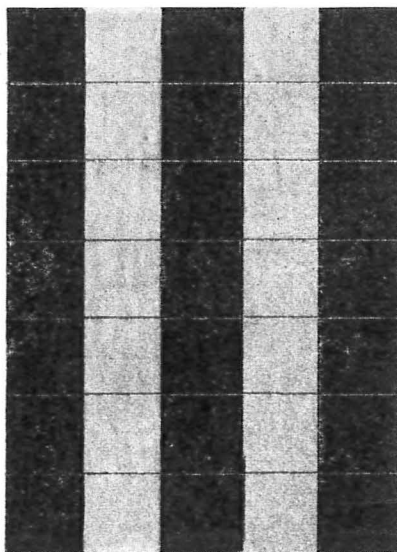


Fig. 2.

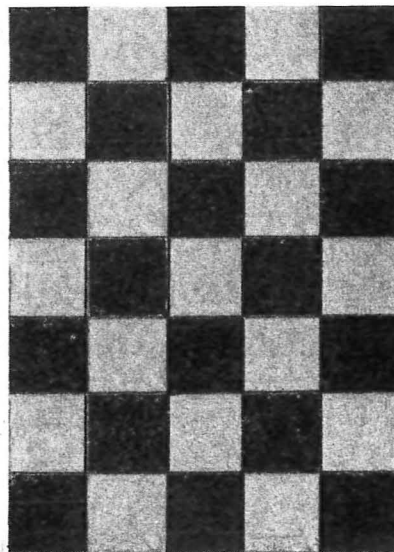
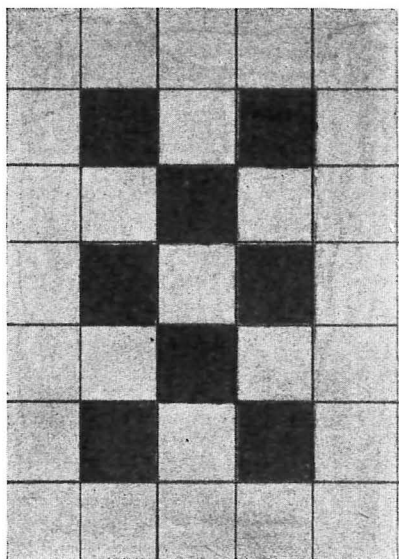
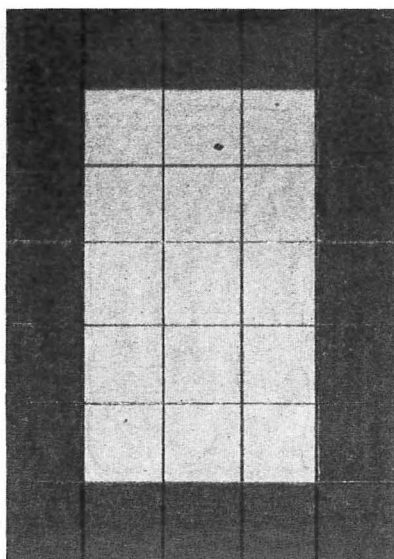


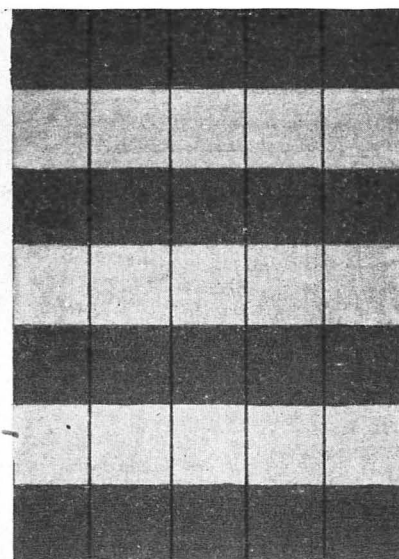
Fig. 3



No. 4.



No. 5.



No. 6.

In the attempt to meet the demands of these times, we must bear in mind that the schools are established to meet the need of education rather than the needs of mere production. The schools are not factories or workshops whose mission is wholly to produce commodities, without regard to the effects of production upon the worker. In the schools we are to learn by doing, and the doing must become in itself a complete educative process. If we undertake in the schools to make useful things, we must not fail to extract from the making, that development of spirit, mind and hand which differentiates a school from a factory or shop. We therefore have no right, as teachers, to permit activities in schools which do not cultivate, develop and discipline. All articles made in the school must be well constructed, of suitable material, and as beautiful as it is possible for those articles to be. This applies to a loaf of bread, a hospital cot, a dress for a Belgian baby or a poster. While attempting to meet the demands of the times, the schools can render the highest kind of patriotic service by keeping ever in mind their right to educate. In our zeal to accomplish we have often forgotten to train taste, to cultivate judgment and to develop skill.

Many "war occupations" have been carried on in the schools during the past few months. Many more will be carried on—the expression has a new significance—in the immediate future. We should learn from our failures, and should look at these occupations as new opportunities for a true development and culture.

#### Problem One: The Knitted Coverlet.

Let us cite, as an almost universal failure, the knitted or crocheted afghan, or crib blanket, made by primary grades in schools thruout the country. The children brought from home odds and ends of colored yarns, the teachers taught the children to knit these odds and ends into six-inch squares. Doubtless it was the original intention to knit each square of a

single color; but if the pink yarn ran out before the square was completed, another color—red or violet, or blue—was often used to finish it. The squares were then crocheted or sewed together to make a coverlet. The results rivalled in hideousness the well known crazy patchwork quilts of the eighties. The one redeeming feature of these coverlets was their warmth, but they would have been just as warm had they been beautiful, and they might have been beautiful if the educational ideal had been held aloft in the making. The same material could have been so manipulated as to produce a beautiful as well as a serviceable result. When our schools send to Europe such hideous handwork is it any wonder that our country is spoken of abroad as a nation without art?

"But," says the grade teacher who with such pains has taught the children to knit, and to use for these coverlets material that would otherwise have been wasted, "how could I have brought harmony out of this miscellaneous array of colors? The

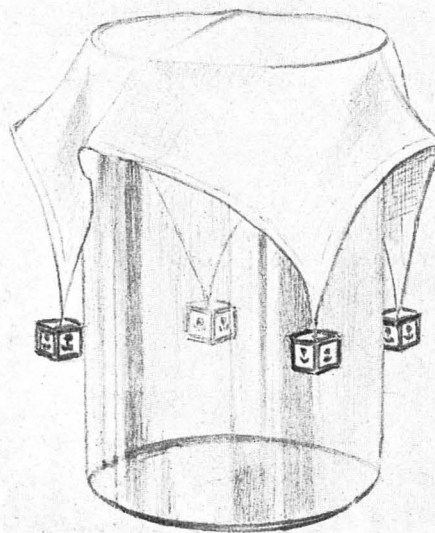


Fig. 7. Cover for Medicine Glass.

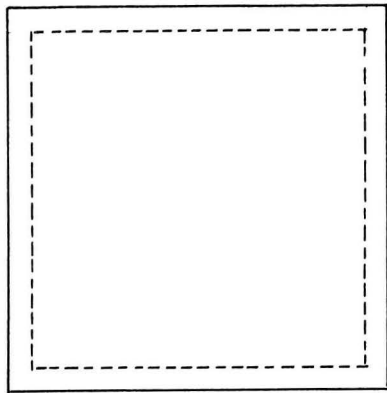


Fig 8 Square of Cheesecloth Cut 6x6 and Hemmed to Size  $5\frac{1}{4} \times 5\frac{1}{4}$

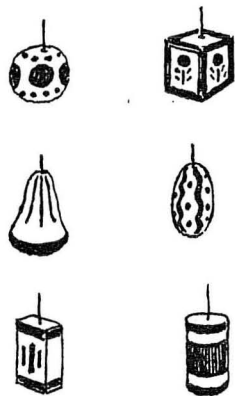


Fig 9 Beads Modelled from Permadello and Decorated with Opaque Water Color and Varnished

children brought pieces and scraps and short lengths of yarns of every known hue. How was it possible to think of design or arrangement under such conditions?" One solution of the problem is here suggested: Separate the entire quantity of yarn into three groups,—a light group, a dark group, and a group of middle or medium values. Into the light group put all pale blues, pinks, grays, light greens, white, etc. Into the dark group put all blacks, dark reds, browns, purples, etc. Into the middle group put all strong, bright colors, such as intense red, orange, blue, green, etc. It is this group that causes discord and that must be manipulated in some way. If we dip all of these intense colors in the middle group into a pot of dark blue or black dye, we shall bring them into harmony. The dyed colors will not all be the same. Some will be dark brown, others dark red, others dark green, etc., but the common element of darkness will bring them into relationship. We now have but two groups to deal with, a light group and a dark group. The six-inch squares may now be made, some of light tones and some of dark tones. If sufficient yarn of one color is not at hand to complete a square the addition of another color of equal value will not offend. Having now a number of light squares and dark

squares, a definite plan of arrangement can be used in sewing them together. Figures 1 to 6 are suggestions. Here, each design is made up of 35 six-inch squares. A coverlet made under these conditions becomes a problem of real educational value, while the usefulness of the result is in no way impaired.

#### Problem Two: A Cover for a Medicine Glass.

The simple device illustrated in Fig. 7 is intended to protect from dust the contents of a glass of medicine or water. It is useful in a bedroom or hospital, is

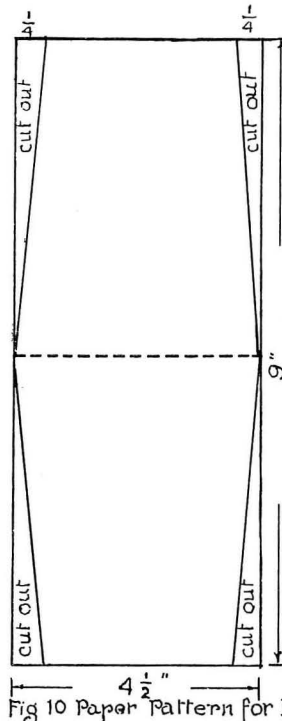


Fig 10 Paper Pattern for Bag

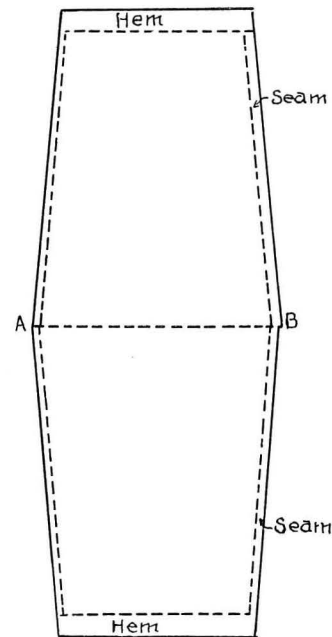


Fig 11 Unbleached Muslin Cut from Pattern

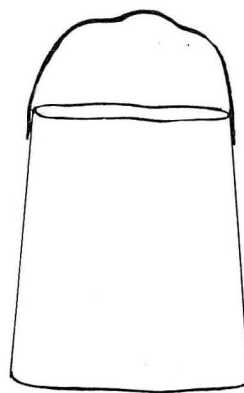


Fig 12 Bag Seamed and Hemmed with Cord Attached

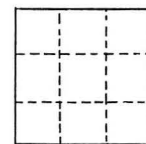


Fig 13 Two Inch Square of Paper Trisected by Folding

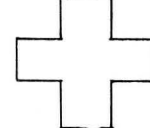


Fig 14 Cross Cut from Trisected Square

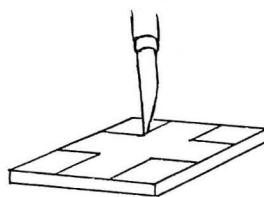


Fig 15 Two Inch Linoleum Block with Design Traced and Knife in Position for Cutting

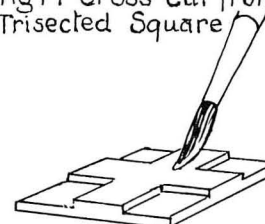


Fig 16 Method of Applying Opaque Water Color to Block

interesting to make and attractive to see. One yard of cheese-cloth cut into six-inch squares will make thirty-six covers. The children are to turn quarter-inch hems and sew them with either a running or a hemming stitch. (Fig. 8.) From clay or permodello they then model on a toothpick or hatpin four beads. When partly dry the beads should be removed from the pin to prevent adhesion. When thoroly dry the beads are replaced on the pin and painted with opaque water colors. Suggestions for designs are shown in Fig. 9. Use systems or arrangements of lines and dots rather than flower forms or other nature shapes. Several color schemes are suggested: (1) A white ground with lines and dots in one intense color; (2) black, white and one intense color; (3) a white ground and two complementary colors, as orange and blue, yellow and violet, etc.; (4) a ground of color with the design in black and white lines and dots.

Liquid white shellac thinned with alcohol makes an excellent varnish which should be applied to the painted beads when they are thoroly dry. The beads are then sewed to the four corners of the square as shown in Fig. 7.

#### Problem Three: A Red Cross Penny Bag.

This penny bag, placed in every home, office, store, bank, church, station, factory and shop in a town, has resulted in the collection of thousands of dollars for the Red Cross. Tho they are styled penny bags there is no restriction as to dropping into these suggestive little pockets an occasional dime, quarter or dollar. Usually the Red Cross Society attends to the collection of the contents, appointing a collector for each district in the town. The bags are emptied at the monthly visit of the collector and are immediately hung up again to serve as constant reminders of the increasing need of the Red Cross for funds. Children in the sixth grade can easily make and decorate by block printing the bag illustrated in Fig. 17.

One yard of unbleached muslin will make 32 bags. First tear the cloth into eight strips, each four and a half inches wide and a yard long. Then tear each of the strips into four equal lengths. Each piece will then be four and a half by nine inches. The children should measure and cut a paper pattern as shown in Fig. 10, in order to secure accuracy in cutting the slanted sides of the bag. Lay the pattern on the cloth and cut the slanted sides (Fig. 11).

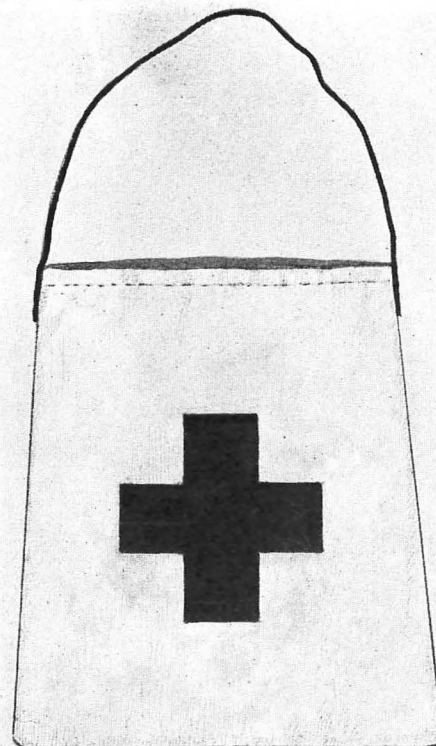


Fig. 17. Red Cross Penny Bag.

Fold the cloth in the middle, and seam the sides. Hem the top. Sew the end of a piece of bright red macreme cord to the top of each seam on the under side. The bag is not to be gathered at the top, but is to be hung by the cord from a doorknob or nail. (Fig. 12.)

The pattern for the Red Cross emblem, which is to be printed on the bag, is made by trisecting two sides of a two-inch square of paper (Fig. 13). Cut the corners from the folded square (Fig. 14). Lay the paper cross upon a two-inch linoleum block and trace the outline with a sharp pencil. Holding a sharp knife in a vertical position cut on the traced lines (Fig. 15). Pare down the background to half the thickness of the linoleum. Apply bright red opaque water color to the block, spreading the paint evenly with the brush (Fig. 16). Place the block, painted side down, on the bag, as shown in Fig. 17. With a steady, strong pressure of the thumb make an even print. One block may be used to print many bags. Fresh color must be applied for each impression.

(To be continued.)

**P**PRINTING made a million times stronger the power that writing had to make all men brothers thru likeness in knowledge and wisdom. Moreover, the truths that pass thru the printing press can almost never be lost. And with the printed records of human life at hand each man can study all men and find his place among them and discover the work for which he is best fitted.—*John Cotton Dana.*



# THE PRESENT TENDENCY OF INDUSTRIAL ARTS AS DETERMINED BY SCHOOL SURVEYS

Bernard A. Beinlich, Oakmont, Pa.



RECENT educational practice has been subjected to a severe and searching inquiry to determine whether or not our schools are performing their highest efficiency. Modern scientific management is being applied to school products as well as to business. The demand for a survey of our school systems has been forced upon us by our attempts to readjust an old and inflexible curriculum to a rapidly changing social structure. We have become dissatisfied with the crude educational machinery of fifty years ago and insist upon methods and standards to meet present conditions. As pointed out in the Maryland survey, we have a fair statement of conditions in the average school, "Judging from what goes on in most of the city high schools, one would infer that their students are all going to college with the ultimate expectation of leading either a professional life or a life of leisure," and in the Vermont survey it is stated, "that today the elementary school course guides the child away from a useful life in the community." Even tho we may not be ready to accept these statements, the fact remains that there is a strong under current of feeling in the public mind that the schools are not measuring up to the needs of actual conditions in life and the question, "What is the matter with our schools," is being raised from the Atlantic to the Pacific. Many cities and states have given their answer to this question in the form of school surveys. Not all of them have been successful, but most of them have discovered the weak spots in their system and have adjusted themselves to meet the needs of society as it exists today.

In my study of the surveys, I have found it convenient to classify them under three types, first, those surveys which have not accomplished very much as they seem to be only an imitation of the real thing and their contents are unreliable; second, those of the smaller cities, as Butte, Mont.; Salt Lake City, Utah; Bloomington, Ind.; Framingham, Mass.; South Bend, Ind.; Springfield, Ill.; Rockford, Ill.; Los Angeles, Cal., etc.; third, those that give a rather exhaustive survey of the industries and are helpful in giving us the present tendencies in the industrial arts. Among these are Richmond, Va.; Richmond, Ind.; Minneapolis, Minn.; Indianapolis, Ind.; Cleveland, Ohio; Denver, Colo.; New York, N. Y.

I shall confine myself to the findings of the surveys in relation to the industrial arts. As I have previously stated, the surveys attempt to measure the product of our schools. To do this it became necessary to devise a system of measurements with which we can measure the amount or degree of progress made in a particular subject. This has been true, however, only in the academic subjects as no standard has

thus far been devised to measure the work done in industrial arts. The nearest approach to it has been worked out by Stenquist of Columbia University, in his measurements on mechanical ability, and this work will soon be available as he intends to issue a monogram on his results within the next year.

Since there is no standard for the measurement of industrial arts, the investigator of this field must be guided by two propositions: (1) What is the aim of industrial arts? (2) What means are employed in realizing the aim? The first type of surveys contain nothing of value related to our subject and one would infer that the investigator lacked the necessary qualifications to pass judgment, or the quality of work was of such a nature that courtesy compelled silence. My conclusions are, therefore, based upon the recommendations found in the last two types of surveys. Anyone who studies these surveys is impressed with the fact that we are at last realizing a unity of aim in our instruction whether we call it manual training, prevocational work or industrial arts. This unity of aim is industrial intelligence and vocational direction. These terms are discussed so thoroly in the surveys that I shall not take space here for explanation. I am more concerned with the means employed in realizing our aim.

Our former courses in manual training with their wooden ideals of education are being rapidly relegated to the educational scrap heap. In their place we want fields of activity closely associated with the life outside the school. For our guidance we need to study the surveys and discover how this has been brought about successfully. The suggested lines of work recommended and successfully carried on are as follows: (1) woodwork, (2) concrete, (3) electrical construction, (4) sheetmetal work, (5) repair work, (6) machine shop practice, (7) printing, (8) study of engines.

The amount of work attempted will depend upon the locality, its resources and facilities, but every school can cover at least three fields. The work is most suitable for pupils above the sixth grade, altho creditable results are being obtained in lower grades. The writer has woodwork, concrete and electrical construction in the sixth grade and finds the boys have no difficulty in doing the work.

The above outline offers a wide range of activities and certainly commends itself in preference to the old system of manual training. The latter was based upon an imitative idea, while the industrial arts have as their basis the creative conception and tend to develop the thinking power of the boy as well as skill. The earlier courses in shopwork were based upon a system which was believed to embody all the essential elements of manual skill and dexterity. Their exponents accepted them without questioning

their educational value in American life. Today we have a larger vision. We are demanding courses of study which will give the pupil an opportunity to try himself out in various lines of activity. He will be getting vocational direction and industrial intelligence as well as skill and technique.

Before we can hope to reach our greatest possibilities along this line it will be necessary to enlighten the minds of the larger proportion of our school administrators as well as those who attempt to instruct.

In my visits and conversations with those who direct school affairs, I have been impressed by the lack of any real aim in shopwork. The actual shop conditions in nearly every case presented the ideals of the superintendent. I once worked with a principal whose highest notion of shopwork was to have a large heap of models for exhibition day and incidentally

offer motor activity for the boys. Today that principal is an assistant county superintendent directing others to use the highest standards of teaching efficiency. If we can inoculate those higher up in the control of our schools with the real aim of the industrial arts movement we shall be a long way on the road to ultimate success.

No one can deny that the outline of work as indicated in the surveys is feasible or practical. Our schools of technology and industrial education are preparing teachers in the various fields. The adoption of the new endeavor requires only sanction of those able to introduce it in the educational system. Whatever choice is made we need to keep in mind that if the industrial arts are to be of real service the course must be extensive rather than intensive. This implies the greatest number of activities possible so that the boy may receive vocational direction and in a measure acquire industrial intelligence.

## THE USE OF SEWING MACHINE ATTACHMENTS

Ada L. Wilcox, Joliet Township High School



EFFICIENCY is the slogan of every industry and trade at the present time. The more work a machine can be made to do, the less human power is necessary and therefore the more efficient becomes the machine. Why should not the sewing machine become efficient? It is equipped with a set of attachments which are very valuable time savers. The average woman of the home doing all of the sewing for the family knows very little of the value of her sewing machine attachments. In many cases they have been lost or thrown away. It is the business of the sewing departments in the schools to teach the girls the value of these attachments. Thus the girls are prepared to help their mothers and others with these attachments.

Have you ever noticed how sewing textbooks avoid the attachments? Very few mention them and usually it is simply a list of the attachments that should come with every machine. A great many sewing teachers avoid the attachments. The universities and normal schools neglect to teach the use of attachments, unless the student especially requests instruction in the use of one or more of them. Then, the use of attachments should come in the sewing course of every high school. If the time is limited, put in the attachments and omit the underwear which most high school girls dislike to make.

In the Joliet High School, we give two weeks to learn the uses of the attachments. Each girl in the second semester of the sophomore sewing is required to learn each attachment and all of its uses. Each of our eighteen machines used in the school has a complete set of attachments in good condition. At the end of each semester every attachment that has been broken or lost is replaced. We begin with the

simplest, the bias gauge. Each girl is given a bias gauge. The method of using the gauge is explained and each girl is required to cut bias strips of varying widths. After she has learned to cut a piece that is seven-eighths of an inch wide, the full length of the strip, without jagged edges, she is given the binder. The method of inserting the bias, just cut, in the binder is explained and each one inserts her piece of bias in the scroll of the binder and watches the edges turn under, while she pulls the bias thru the binder. The rest of the explanation consists of how to insert cloth to be bound, how to make French fold and a list of all problems to be made on the binder as it follows in the outline. When the binder is thoroly understood, each girl takes her place at a machine and using scraps of cloth practices binding with both commercial bias and bias she has cut. Each girl practices the first problem, binding with commercial bias until she can do it well. Then she takes the second problem and so on thru the list. Every girl keeps one good sample of each problem and mounts it in her notebook. She has a page of samples made on the binder, another with the ruffler and one for each attachment. If there are enough machines for each girl to have one, the work can be done rapidly and the bias gauge and binder can be mastered in two days, by the entire class. If the class is large and the machines are few, it will take longer. Each day after that one other attachment is studied. The ruffler, tucker and foot hemmer have been used in previous work so all of the uses are taught more rapidly.

When all of the attachments are mastered, the student is ready to begin her speed problem. Each girl chooses the garment she wishes to make with attachments for speed. In choosing the garment she considers which attachments she can use and any way

in which she might save time. She chooses a garment she has made before, so she is familiar with the construction of it. She counts the time from the time she puts the pattern on the material until the last thread is cut. The simplest and quickest made garment was the cover-all apron, which crosses in the back and buttons on each shoulder. It required from 35 minutes to one hour to make this. The work consisted of stitching on the piecing, binding all around the apron, stitching the pocket on and making two buttonholes. The most rapid worker took five minutes to cut it out, eleven minutes to sew the binding on and the remaining nineteen minutes for making buttonholes and tying ends. She used commercial bias.

A lingerie waist was made in three hours. The French seams were all made with the foot hemmer and the collar was finished with a hem and lace sewed on at the same time with the foot hemmer. Making buttonholes down the front took a great deal of this time.

The outside skirt was very popular. It was gathered around the waist with the ruffler, seams bound, using the binder, or French seams, using the foot hemmer, depending upon the kind of material, and the hem put in with the adjustable hemmer. Pockets and belts completed the skirts, which were made in one and one-half to three hours.

Middy blouses took from three to six hours to make, using the foot hemmer to make flat felled seams. The six-hour middy was more elaborate with yoke and slit pocket.

Under clothing was also made rapidly. There was no basting done on these garments. If plaids or checks were used, they were matched and pinned before stitching. Since the girls were in the second year of sewing and had learned the value of good work during the first year, the finished products were very satisfactory as to workmanship. Since making the speed problems the girls, without a suggestion from the instructor, think of ways they might use attachments in each new garment. These classes can make nearly twice as many garments as other classes not using the attachments.

The writer feels that the very satisfactory work accomplished in the course, the additional incentive to originality on the part of the student and the sav-

ing of time and labor certainly justify the teaching of attachments in the high school.

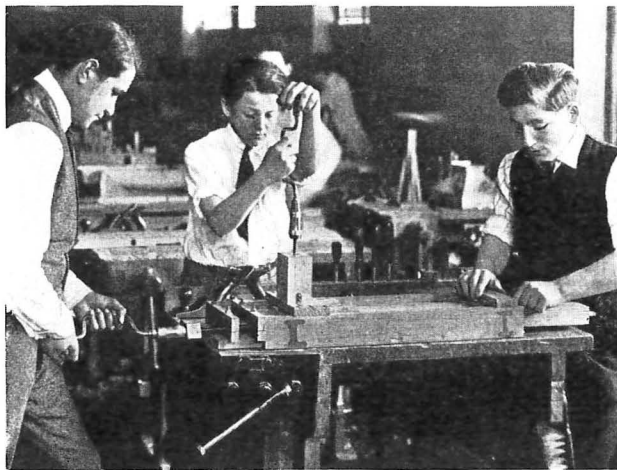
#### List of Samples to Be Made with Sewing Machine Attachments.

1. *Bias Gauge*:
  1. Bias of varying widths.
    - a.  $\frac{3}{8}$ " wide.
    - b. 1" wide.
2. *Binder*:
  1. Binding with bias tape.
  2. Binding with bias from 1.
  3. Binding around a curve.
  4. Binding around a curve. One is an inside curve like an arm hole and the other an outside curve.
  5. Binding around a corner.
  6. French fold on the straight.
  7. French fold on a curve.
  8. French fold around a corner.
  9. Fancy buttonholes.
  10. Plain buttonholes for rompers.
  11. Binding on gathers.
  12. Piping.
3. *Foot Hemmer*:
  1. Hem.
  2. Hem with lace.
  3. Hem around curve.
  4. Hem and sewing in facing.
  5. French seam.
  6. Flat seam.
  7. Corner.
4. *Adjustable Hemmer*:
  1.  $\frac{1}{2}$ " hem.
  2. 1" hem.
  3. 4" hem.
5. *Quilter*:
  1. Quilting.
  2. Guide for wide tucks.
6. *Braider*:
  1. Braiding on straight lines.
  2. Braiding on curves.
  3. Braiding a complicated design.
7. *Tucker*:
  1. Small tucks with small spacing.
  2. Larger tucks with wide spacing.
  3. Tiny cross tucks.
  4. Tiny diagonal tucks.
8. *Ruffler*:
  1. Gathering with small stitches.
  2. Gathering with large stitches.
  3. One plait every fifth stitch.
  4. Same as three with lace on each side.
  5. Gathering and sewing lace on in one operation.
  6. Gathering lace and sewing to cloth in one operation.
  7. Gathering ruffle and sewing on to cloth in one operation.
  8. Same as seven with bias to cover raw edge.
  9. Shirring—uneven.
  10. Shirring with heading.

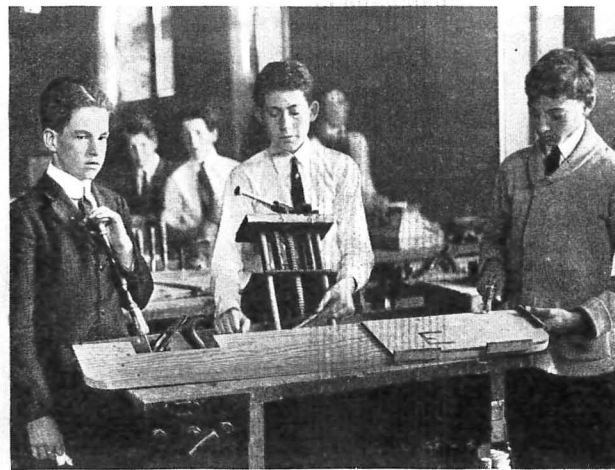
THE arts and crafts movement of today is a part of the great movement in education. It proclaims to the world that beauty, skill and education are for all; that the common thing should be made beautiful, and the beautiful, universal.

F. T. Carleton.





No. 3.



No. 4.

## WORK BENCH MADE WITH THE USE OF JIGS

R. T. Johnston, Montclair, N. J.

**M**UCH has been said for and against the use of jigs in the manual training shop. The advisability of making benches of parts of shop equipment has also been freely discussed. It is my opinion that a great deal of practical knowledge is gained by the boys in properly carrying out a problem of this kind. The following illustrates the use of jigs in making 24 work benches, carried out by an eighth grade in the Maple Avenue School of Montclair, N. J. This problem was carried out by factory methods, using the jigs as machines.

To begin with, all stock was ordered S4S, cut to exact size. This did away with the planing and fitting that would ordinarily occur in a factory. The steps were thoroly explained to the students and were accompanied by a discussion of factory processes, cost of excess handling and general efficiency.

The class was divided into squads with a foreman in each group. The instructor acted as general superintendent. The foreman of each squad was held responsible for his particular job. The use of the jigs

was demonstrated separately before the entire class so that the different steps might be thoroly understood. The class was very enthusiastic and in some cases had to be cautioned to go a little more slowly lest they ruin the bits which would at times bend and bind. The boys were so interested in the work that they would alternately change about in the boring and would time themselves, thus creating competition. At work on most of the jigs were three boys, including the foreman. They divided the operations into getting the stock, setting it into the jig, shifting it to meet the different holes, boring the holes and getting the stock out of the way when finished.

When a squad completed the use of the jig, the next step in the operation was given them until all were finally assembled, sanded, oiled and shellaced. Templets were used for marking all corners and screw holes.

The tool rack was made six inches deep so that the edges of the tools would not protrude but would protect the boy working in front. It was made to fit the tools and the six-inch depth made it possible for the tools to stand straight. There is a place for all the bench tools in the rack, which eliminates irregular



Fig. 1.

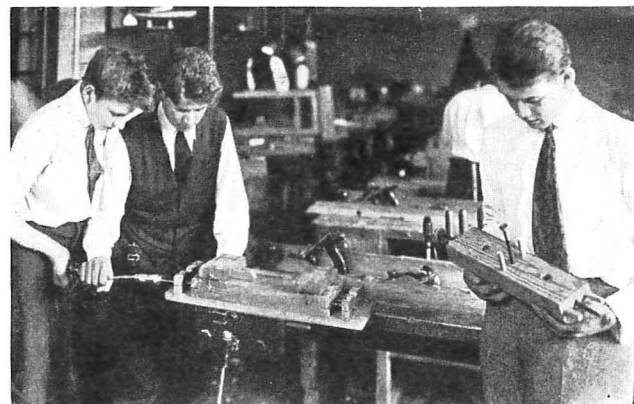


Fig. 2.



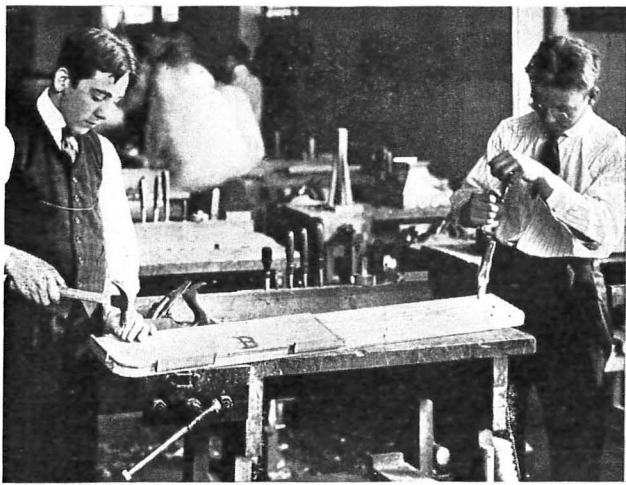


Fig. 5.

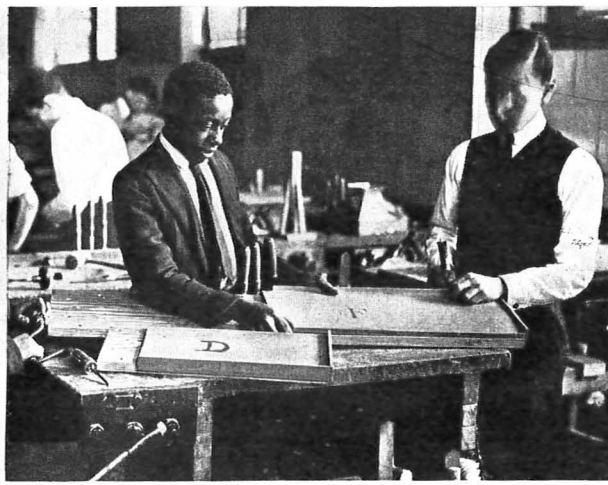


Fig. 6.

hanging of tools along the sides of the benches and is a protection against any loss—readily detected by looking down a row of benches.

The material was all hard pine except the top, which was two-inch oak. The cost of the material for one bench from the mill amounted to \$3.00. The vises were "Rapid Acting Columbia" and cost \$3.10 each; screws and corner braces cost about \$0.15, making a good, strong, durable work bench at \$6.16 each.

The jigs were made as fool proof as possible. There were maple blocks made and bored for bit gauges and marked with corresponding marks on the jig. Brass ferrules were used in the jigs to alleviate wearing. The separate pieces were held tightly in the jigs by wedges which were also numbered.

Figure 1 shows the use of the jigs in boring the holes for the dowels in the legs. For the center hole which receives the draw bolt, the bit gauge is removed and the hole bored all the way thru. A short piece

of dowel rod is used at the end as a stop to get the proper spacing for the three holes.

Fig. 2 shows the operation of boring the holes in the lower end rails both for the dowels and the draw bolts. The jig was made to fit the rails in length, allowing a space on the side for wedges to hold the rail firm. The three holes were bored in the opposite ends, the middle one being bored without removing the rail and bored from the top. This photograph shows the operation and a finished rail with dowels and bolts in position.

Figure 3 shows the work on the lower stretcher: half-inch holes for dowels and draw bolts on the end and the  $\frac{7}{8}$ -inch hole to receive the nut of the draw bolt. The gauge used to bore the  $\frac{7}{8}$ -inch hole is firmly fastened to the jig, insuring a straight hole and proper depth. This arrangement is the same in the jig used to bore the holes in the lower end rails, Fig. 2, but does not show in the photograph, as it faces downward.

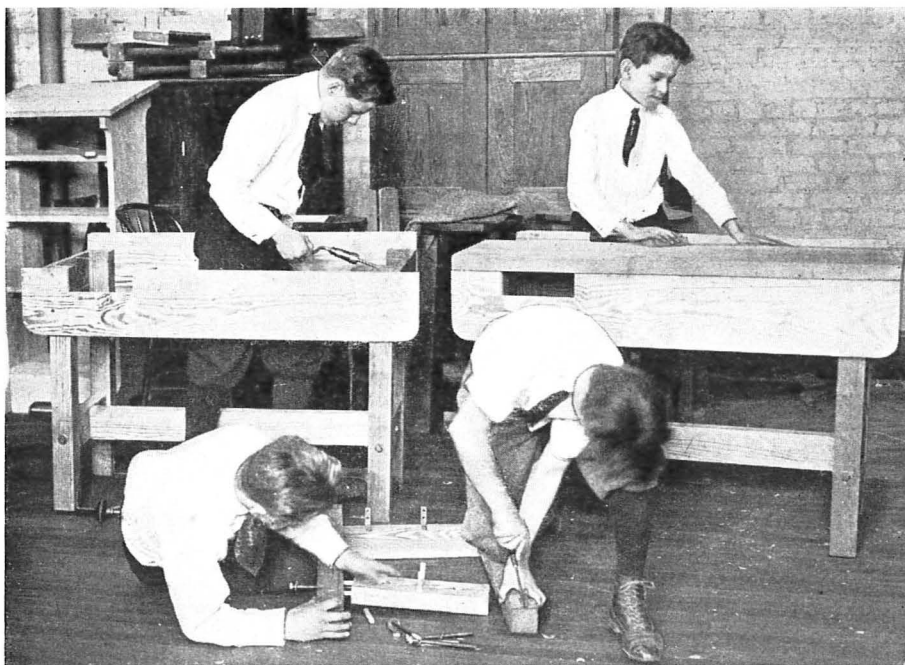


Fig. 7.

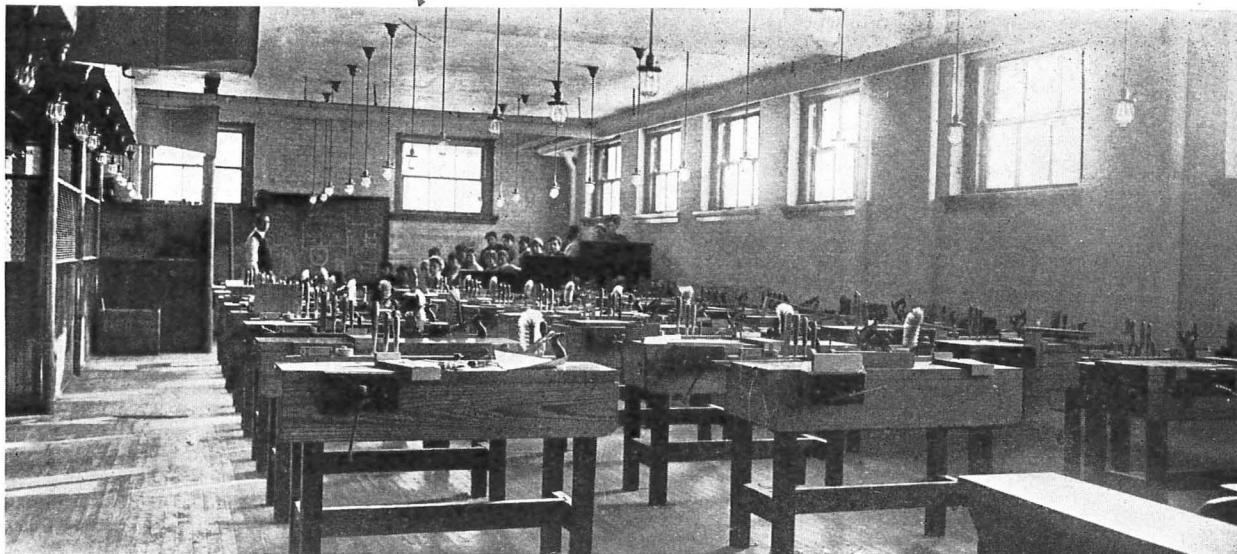


FIG. 8. SHOP EQUIPPED WITH WORK BENCHES MADE BY EIGHTH GRADE BOYS.

In Fig. 4 the use of the templet is shown in marking the corners and screw holes in the front apron. A templet was also used in marking the opening to receive the vise shown in the photograph.

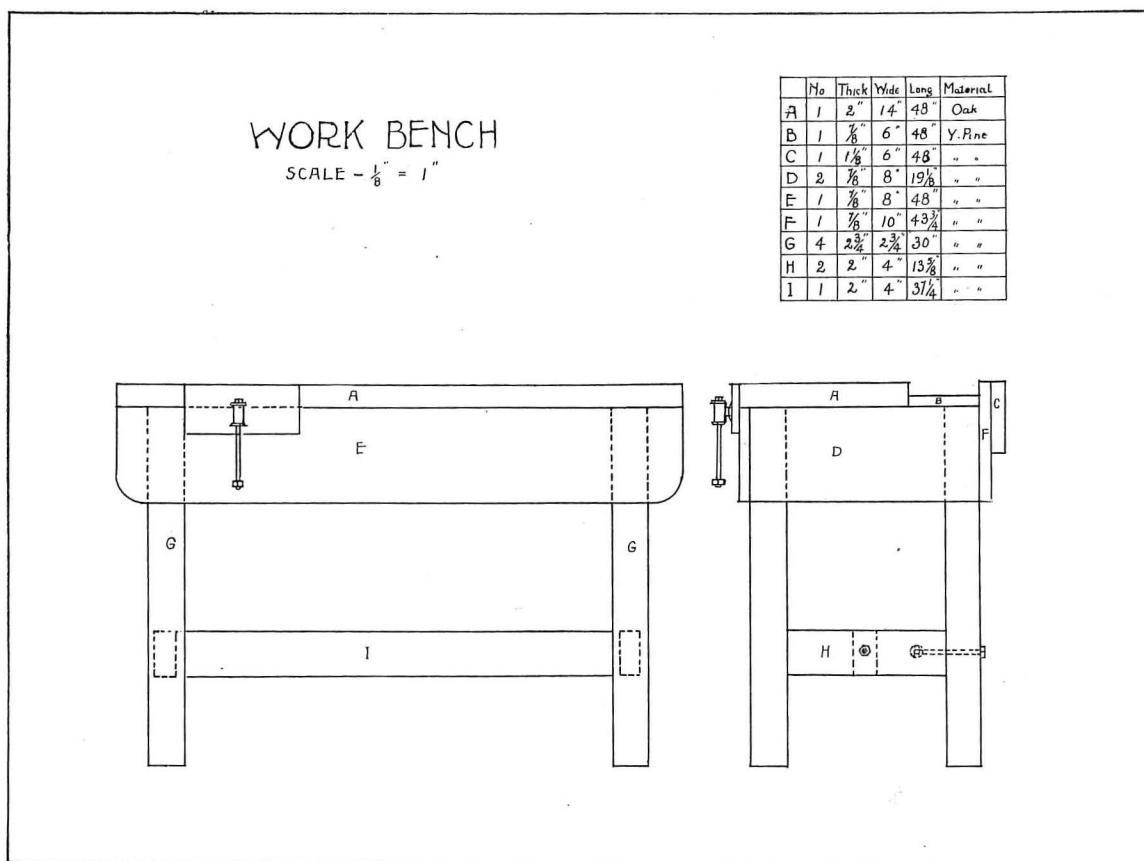
Figure 5 shows the same method of marking the screw holes and corners for B, shown in drawing.

Figure 6 shows templates for marking holes in back and end rails.

Figure 7 shows one group of boys assembling parts. The lower end rail was dowelled and bolted to the legs (G), then the lower stretcher (I) dowelled

and bolted to the ends (H). The upper end rails (D) were clamped in place, marked, and holes bored in legs to receive screws. The front and back rails (E) and (F) were fastened in the same way. Two-inch angle braces were fastened on the inside of rails to hold the top, the bench turned over and screwed on to the top. The tool racks and vises were then put on. The two-inch angle irons were used to fasten the benches to the floor.

Figure 8 shows the shop equipped with the 24 benches made by the eighth-grade class.



WORKING DRAWING OF BENCH MADE IN THE AUTHOR'S CLASS.

# EIGHTH GRADE HANDWORK

L. H. Baxter, St. Johnsbury, Vt.

## Dictionary Stand.



THESE dictionary holders were designed and made up in quantities to supply a demand for a light serviceable stand for the different rooms in our school buildings.

They were constructed of soft pine to dimensions shown on drawing. We finished them with brown mission stain and two coats of white shellac, rubbed with pumice and oil.

A piece of brown burlap was tacked to the edges and covered with a rim of wood  $\frac{1}{2}$ " thick and  $1\frac{1}{4}$ " wide, mitred at the corners. A small strip of wood  $\frac{1}{2}$ "x $\frac{7}{8}$ "x21" was nailed on top as shown to prevent the book from sliding. A shelf was provided below.

## Piano Bench.

A call for some sort of piano bench for the school pianos resulted in the design shown.

These were made up of red birch, and when the pieces were cut to dimensions they were treated with a medium solution of bi-chromate of potash dissolved in water and applied warm. This was done to darken the wood which was afterward stained dark mahogany with a solution of Bismark brown dissolved in warm water.

After drying 24 hours the surface was lightly

rubbed down with No. 00 sandpaper and two coats of white shellac were applied, each coat being rubbed lightly with No. 00 sandpaper. One more coat was then applied and rubbed with pumice and water, giving a very handsome finish.

## Drawing Board Holder.

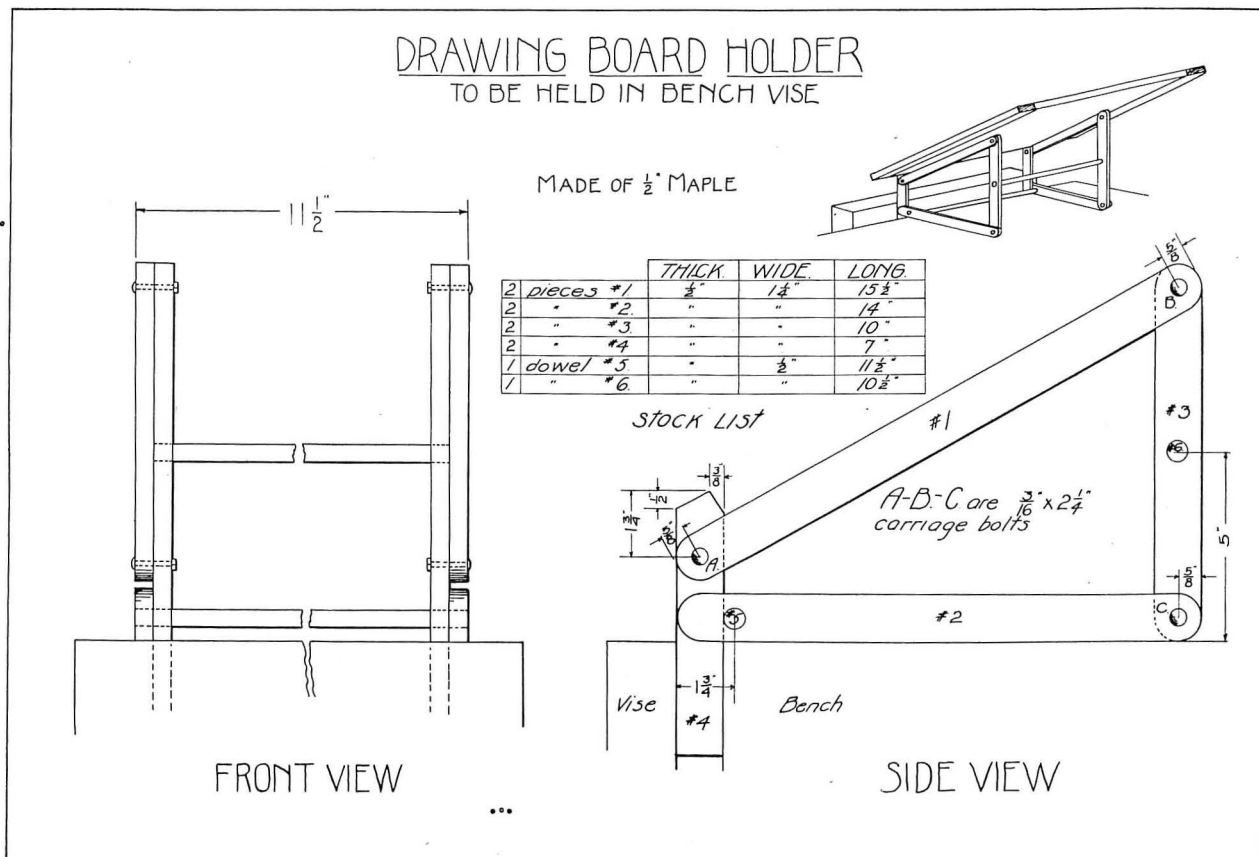
As our mechanical drawing is done in the manual training shop we found it necessary to raise our drawing boards up some distance from the bench tops and to give them some "pitch."

The drawing board holder illustrated was worked out and has been used for two years, giving excellent satisfaction. It is quickly adjusted or taken down, folds up compactly, costs but little and saves a good many backaches.

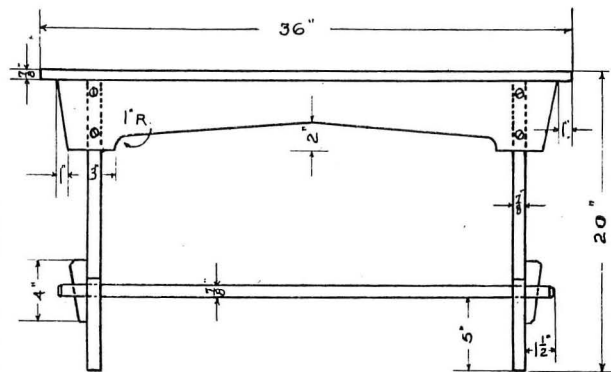
## Book Trough.

Many of the teachers requested some sort of a book rack for their schoolroom desk and in order to have them uniform we used the design shown in the working drawing and made them up as class problems with very satisfactory results.

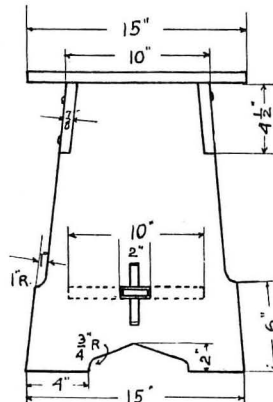
Some were made of oak and stained, shellaced and rubbed down, and some of gum wood which was oiled, one coat of shellac applied, rubbed down and waxed.



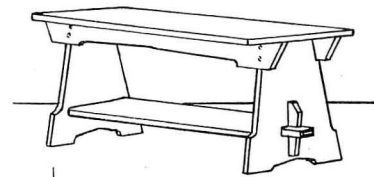
## PIANO BENCH



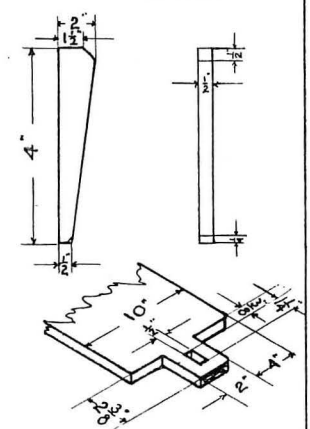
FRONT VIEW



END VIEW

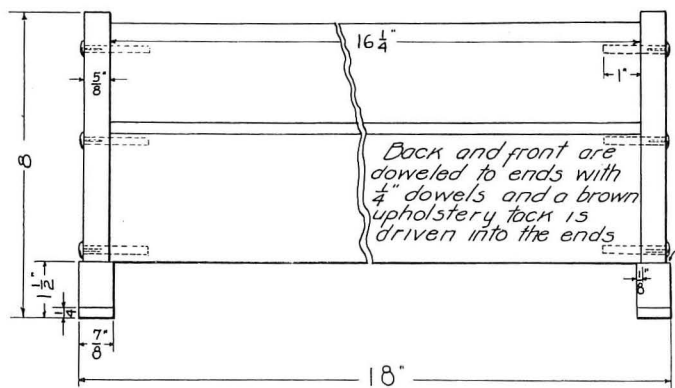
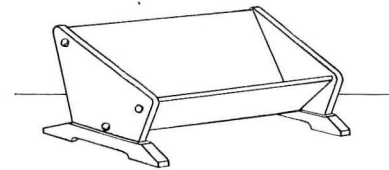


PERSPECTIVE

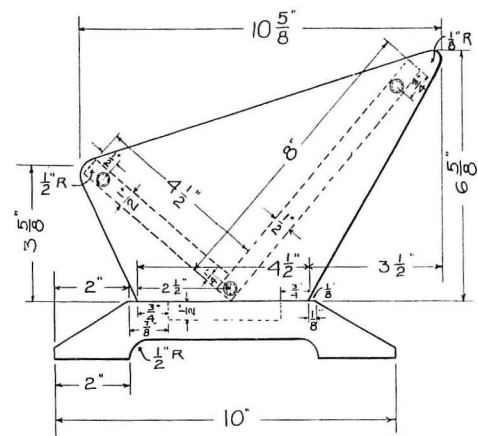
*Detail of pinned mortise and tenon joint.*

## BOOK TROUGH

		THICK.	WIDTH	LENGTH
2	Ends	$\frac{3}{8}$ "	$7\frac{1}{8}$ "	$10\frac{3}{8}$ "
2	Bases	$\frac{3}{8}$ "	$1\frac{1}{2}$ "	10"
1	Back	$\frac{1}{2}$ "	8"	$16\frac{1}{4}$ "
1	Front	"	$4\frac{1}{2}$ "	$16\frac{1}{4}$ "

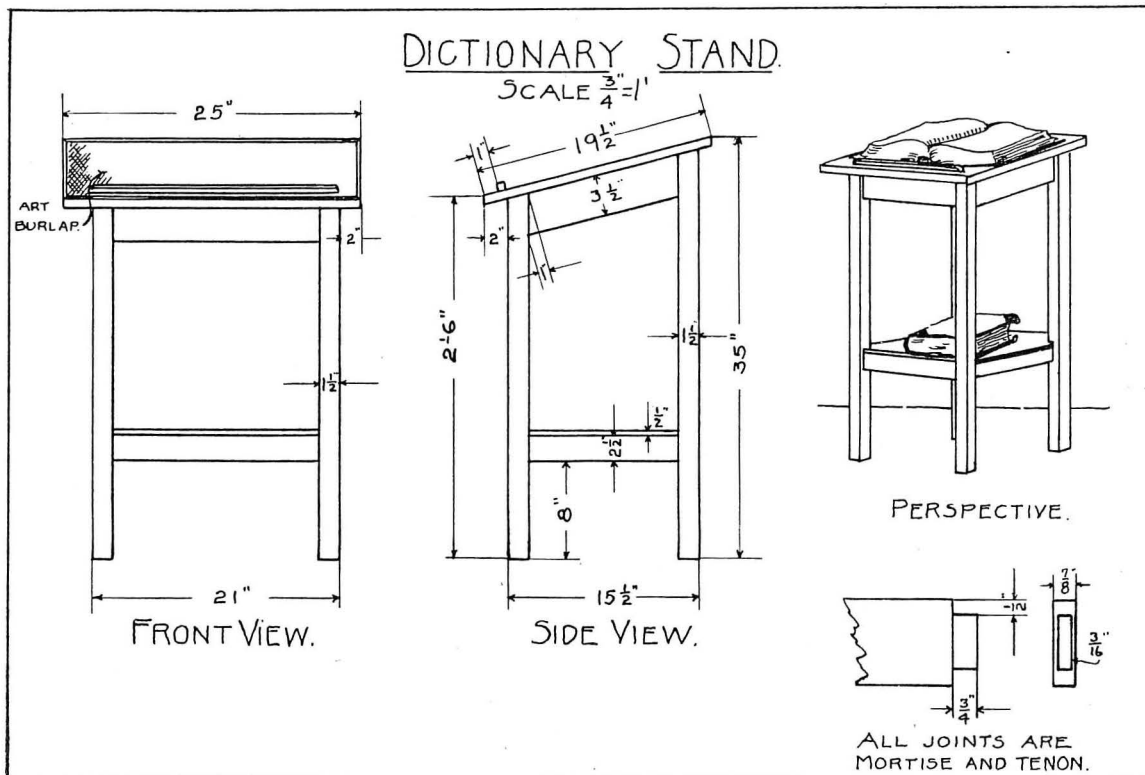
*Stock List.*

FRONT VIEW



END VIEW

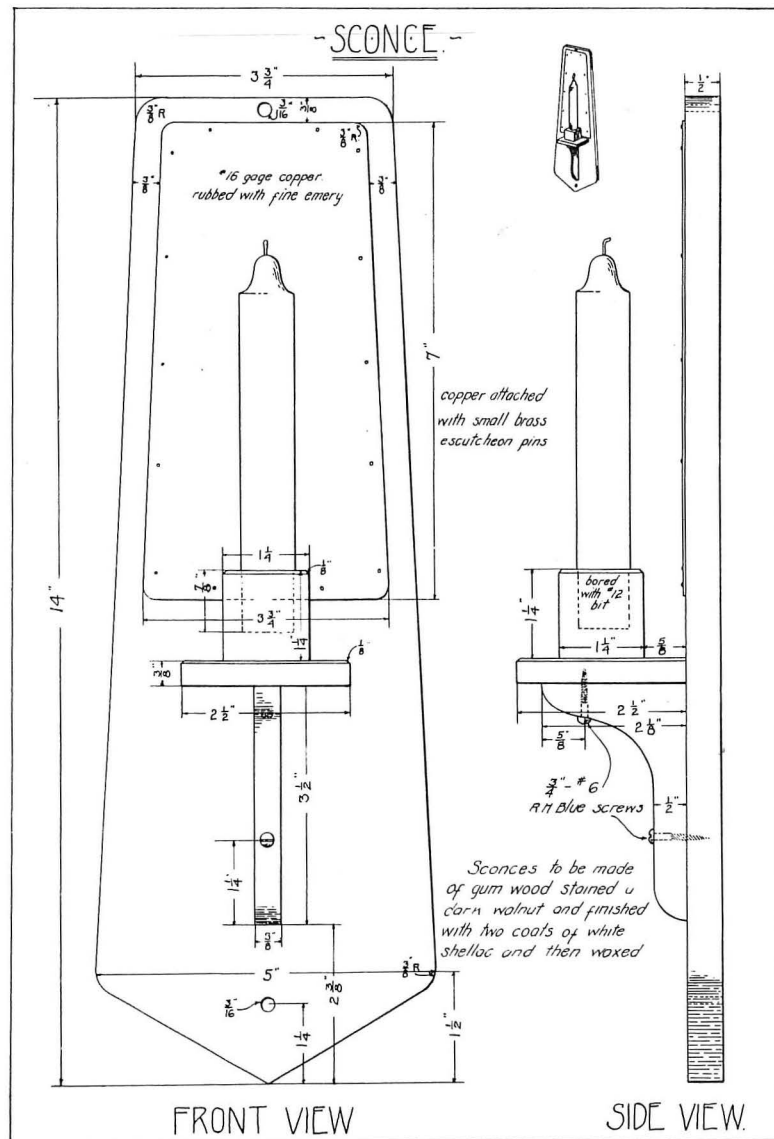




#### Sconce.

A large pine standing on one of the hills just outside the town and which had been a historic landmark for years was struck by lightning and fell during a heavy storm. A prominent citizen on whose property it stood asked if my boys could not take the wood and make up some articles for a local church fair. Many things were made, and among them the most popular were about 20 pairs of sconces of the design shown in the drawing. These were stained, some brown, some dark green, and a copper reflector was made and attached as shown. They were shellaced and waxed and a candle placed in the socket.

On account of the historic value of the article, every one was sold and many orders were filled afterward. The boys were very much interested and out of the lumber remaining they made up many small articles for themselves.



**M**ANUFACTURE and art are now going on almost together.—Where there is no manufacture, there is no art. If you glance over the map of Europe you will find that where the manufactures are strongest, there art also is strongest.

—Ruskin.

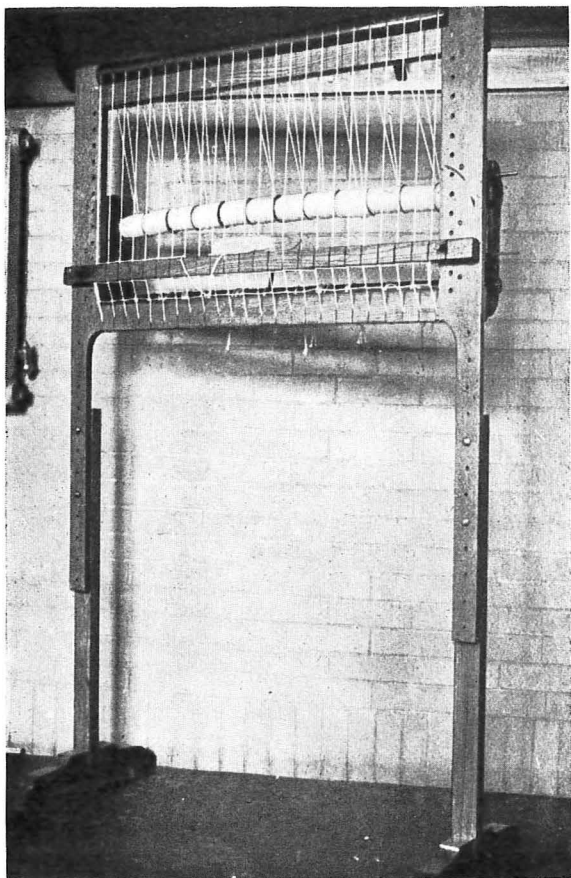
# Equipment for the Bedside Occupation of Men

Louis J. Haas, Director of Men's Occupations, Bloomingdale Hospital, White Plains, N. Y.

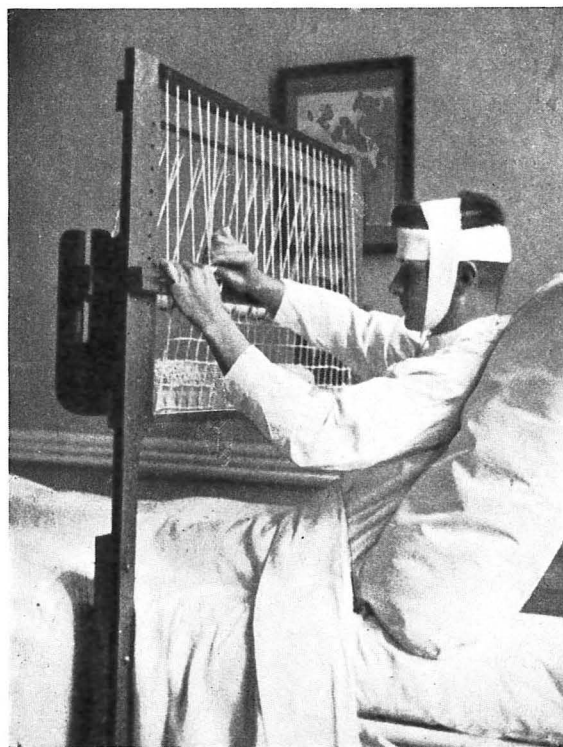


CCUPATIONAL Therapy, at the bedside or in the shop, has been practiced in many of our hospitals and has been a means of treating certain forms of disease with very gratifying results. Since our government entered the war, and even before that event, much study has been given to the use of occupation as a curative agent, by all of the nations engaged in the war. As soon as interest in this curative agent became apparent in our own country and the great need of persons, competent to assist in the conducting of this work, became somewhat generally known, courses in occupational therapy sprang up in many large cities. Persons interested in this work organized at their own expense, special schools to train young women to become occupational aids. Thus with the advent of these courses and special schools, Occupational Therapy has become quite generally known.

Those who are conversant with what is being done in these schools and short courses might feel from the lengthy reports on the work that most of the problems have been solved. This is far from true. Men and women who for some years have made use of occupation for its curative value and who appreciate from experience that bedside occupation is



Ill. 1. Tennis Net Loom.



Ill. 2. The Loom in Use.

different and more difficult than shop occupation, realize that those who are preparing to enter this work in the military hospitals have problems and difficulties ahead which they cannot fully appreciate. One of these difficulties is the lack of suitable equipment for the carrying on of simple occupations by men who are confined to their beds or who are just able to sit up in a chair in the ward. One who is conversant with the needs, and what the market has to offer, realizes, only too well, that equipment does not exist for this work. The need is so unusual that it is difficult even to design or modify standard handicraft equipment for this service.

In approaching the subject of bedside occupation for men it is important, first of all, to realize that men are essentially different from women in their tastes, habits of thought, work and play; and that men will be really interested only in masculine occupations. While women may successfully present occupations to the bedside patient, it is only thru concentrating a man's interest on his work that they may do him the most good.

Many men who would never express discouragement, or actually admit it to themselves, are in their minds still torn by an ever present doubt as to the possibility of ever being able to do a real man's work again. It is the development of this mental state which retards their recovery. The bedside occupations of a more or less effeminate nature may interest a man by taking his thoughts away temporarily from

himself, they only tend to prove to him, in a subtly suggestive manner, his morbid doubts of ever being able to successfully re-enter the masculine field of endeavor. Such doubts will be effectively dispelled by the doing of something that seems a bit like a man's work and points to the time when thru steadily growing ability and both mental and physical strength he will be able to take his place in the world again.

The writer thinks these reasons strong enough to prove the need of masculine occupation, without attempting to show that bedside occupation should logically be the first link, shop occupational therapy

planned were presented to men to be worked out as occupational work. The men were pleased to construct these pieces of apparatus because they knew just how and what the pieces were designed for and the final use to which it was hoped they could be placed. To the individual men is due, in a large measure, the bringing into concrete form of the equipment here presented.

The tennis net loom which was described in the August number of the *Industrial-Arts Magazine*, was the first piece of equipment studied with the idea of adapting it to the need of a patient who was able

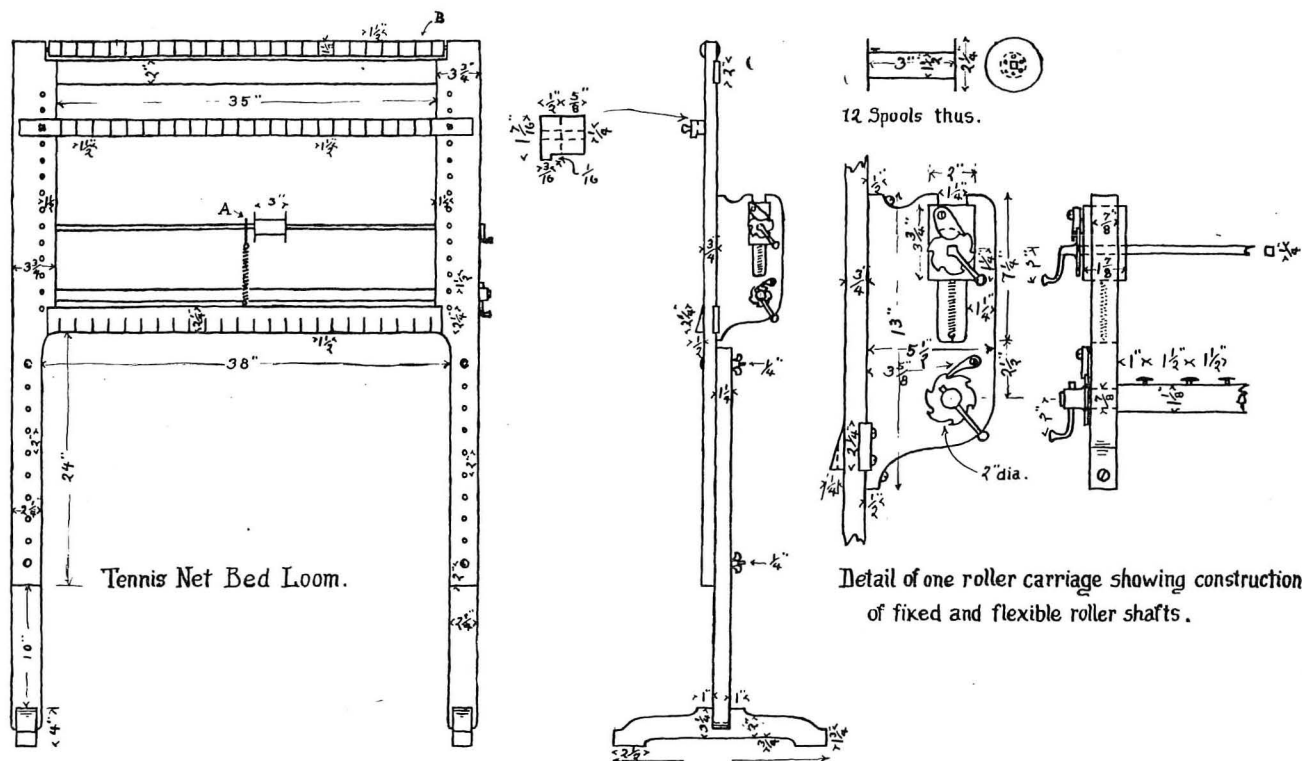


FIG. 1. DETAILS OF TENNIS NET BED LOOM.

the middle link, and vocational rehabilitation the last link in the chain which draws the man back into the sphere of endeavor.

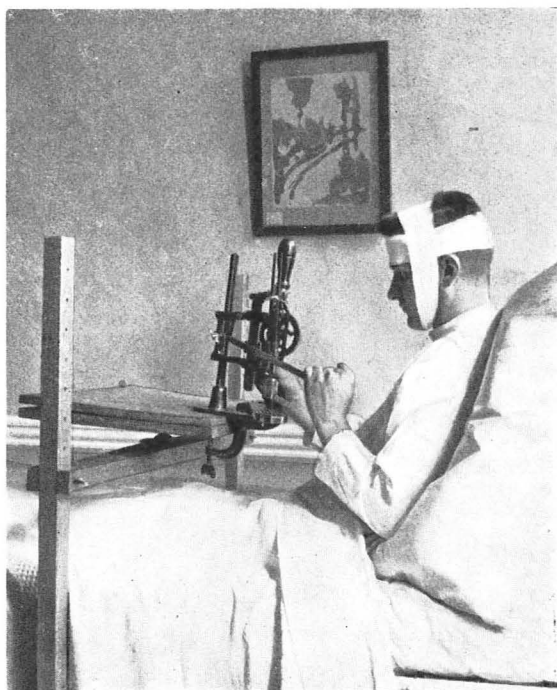
Before explaining the use and construction of the various pieces of equipment illustrated, I wish to explain briefly how the pieces were designed, and to place the credit for their design where it is due.

We found from experience that much of our equipment had to be made in our own shops, if it was to satisfactorily meet our needs. Accordingly the writer asked his assistants, Messrs. Bird, Ahnstron and Hewett, to meet with him two evenings a week and discuss possible modifications of existing methods and equipment used by them in our shops, as occupations for men. These meetings were held in the shop or workroom where each piece of equipment under discussion was in use. Many notes and drawings of a rough nature were made by the group; these drawings were criticised by all, and discarded as fast as proven impracticable. Out of these meetings grew ideas and designs. The drawings for the equipment thus

to sit up in bed and use his hands. A comparison of the drawings of this net loom in the former article with the drawings and illustrations of the piece as adapted to meet the new need, will show how the piece of equipment was thus very much improved structurally. The loom is placed on standards, which allow it to be adjusted to the proper height, while the width between the standards is just enough to clear the width of a regulation hospital bed by a few inches.

The warp is wound upon twelve spools which are calculated to hold two cords, each fifty feet long. It is important that the warp be wound upon the spools with an even tension. We wind the spools upon a lathe in our shop, but a simple and efficient method would be to place a hand-drill in a horizontal position in a vise, place a square mandrel in the chuck of the drill with a spool upon it, and wind up the warp by turning the crank. The warp should be measured into single lengths of 94 feet. Take one of these strands by both ends and slide it thru the





III. 3. Patient Using Bed Stand and Table in Making Brush.

fingers until the middle is reached and then hook this loop over the nail on the spool and wind, letting the cord slide between the fingers to control the tension and the even winding. Fasten the cord, as each spool is completed, and set aside until all the spools are ready.

rod back thru the tension sleeve A again, and place on the other six spools. Now slide the roller bar back into the flexible roller shaft bearing and drop the dog back into place. Unfasten the cords on the spools and unwind enough of the cord to set up the loom. This is accomplished by passing the cord from back to front over the top roller B, placing each cord in its respective slot in the roller, the mesh stick-bar, bottom rail and finally tie it to the nail intended for it on the roller, which receives the finished net work. The cords should all be tied with an even tension. A description of the method of making the knots will be found in the former article above mentioned. The flexible carriage of the shaft containing the warp spools keeps the tension even, and yet flexible in the same way that the weights in the former loom did. As often as a frame full of netting is completed, release the dog of the spool shaft and wind the finished work upon the lower roller. Then drop the dog, see that the tension is the same, and the work may again proceed. This piece of equipment has been found successful both for use of the patient who can stand or sit at his work in the shops as well as the man who can only recline in a more or less sitting posture in bed.

The next problem that was studied was the bed-table. We realized that, if a successful bed-table could be designed, many simple crafts or occupations would be made possible by its use. The possibility

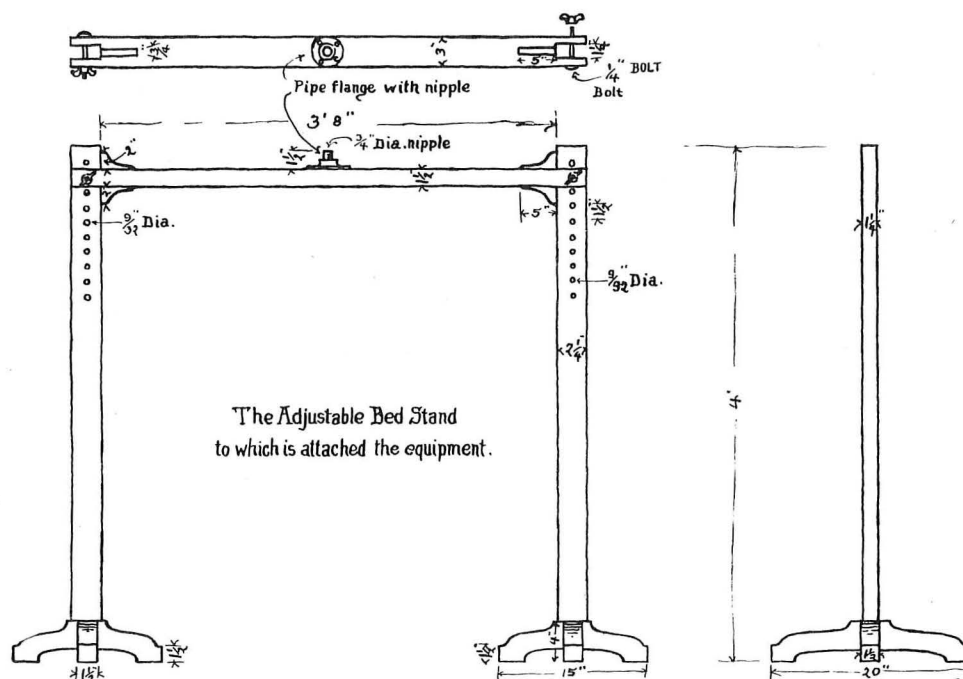
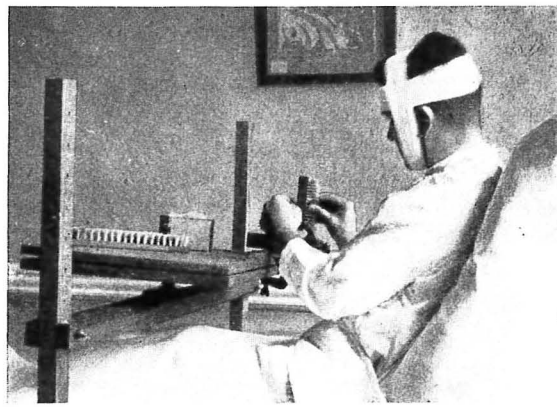


FIG. 2. DETAILS OF BED STAND.

To set up the loom, one proceeds thus: Raise the latch-like dog that engages the cog wheel of the square, iron-bar roller shaft and slide out this roller by pulling on the handle. When this is free of the central spring tension sleeve, marked A in the drawing, slide six spools in place and then slide the roller

of using the standard hospital bed-tray stand was carefully considered; because, if this were practicable, much effort would be saved. It was found, however, that these stands were hardly steady enough to allow of their use as work-tables because they lacked staunchness at the points of adjustment. Some use

was made of tables which were really small stands, that rested upon the mattress on either side of the man. These were found unsteady for obvious reasons. The idea of having the table rest upon the bed-rails proved better; but wherever used, it was found that the patient felt the jar of what he was doing thru the bed. So, finally, we came back to the idea of the two adjustable standards used in the tennis net bed-loom. This time, an adjustable sliding arm was used to connect the standards. It will be noted that this arm has a pipe flange and nipple fastened to its center. These are stock fixtures to be found in any plumbing establishment, and they easily settle the problem of securely attaching the different pieces of equipment to the bed-stand. All other pieces of apparatus have a correspondingly threaded pipe flange attached to them so that they may be screwed into place upon the connecting arm of the stand when it is desired to make use of them. It is only necessary to glance at the illustrations to see how easily this form of bed-stand adjusts itself to many and varied pieces of



Ill. 4. Making Brushes on Adjustable Bed Table.

equipment. The proportions of the feet of the standards are large enough to insure the stand being steady under severe strain and leverage.

The adjustable table was next designed and, as shown in the photograph and working drawings, it is readily adjusted to any position from horizontal to about 45 degrees. It is thus at one time an ideal

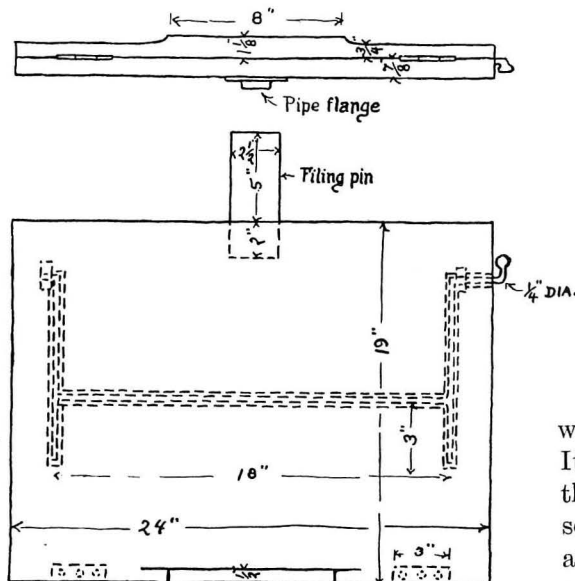
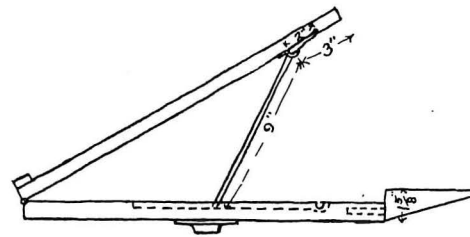
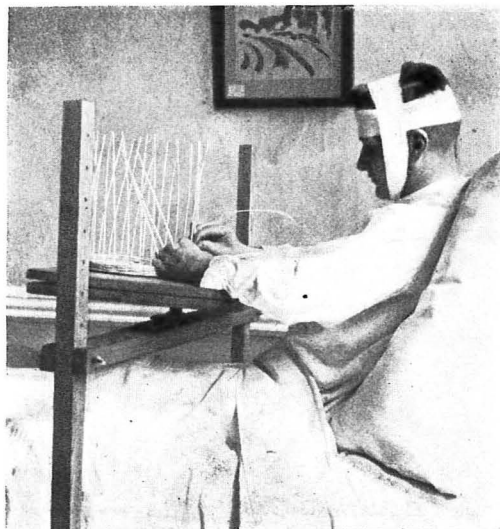


Fig. 3. Details of Bed Table.



An Adjustable Table which makes possible the use of many things as bedside occupation.



Ill. 5. Patient Making Basket.

work table; at another, a drawing or drafting table. It might be inspiring to enumerate a few of the things that seem quite possible to do, with the aid of a table so readily adjustable as to height, position and angle as this one is. The following things present themselves to mind—there may be others—writing, type-writing, drawing, mechanical draughting, water color painting, block printing, cutting wood blocks, stenciling, cutting of the stencils, type setting, some of the processes of simple bookbinding, simple wood carving, scroll saw work, making wooden toys, simple pierced metal work, some of the processes of brush making, as drilling the blocks, drawing the bristles, etc. The table may also help to make certain other occupations more comfortable to pursue in bed as will be seen in the case in weaving with the necktie and belt loom. It would appear, after all, that the range of subjects which may be presented to the willing worker confined to his bed is only limited by the handicaps of the individual case and the ingenuity of the instructor. These occupations can be made to point the way to the more serious work of the later or rehabilitation period, where the work is in all seriousness vocational and surely must be entirely masculine in nature to serve its purpose.

(Concluded in November)

# Making Furniture for the Domestic Science Laboratory

A. R. Nichols, Director of Industrial Arts, Corvallis, Ore.



URING the summer of 1917 the Corvallis, Oregon, school district erected a large addition to the high-school building, supplying four additional rooms for the Industrial Arts Department.

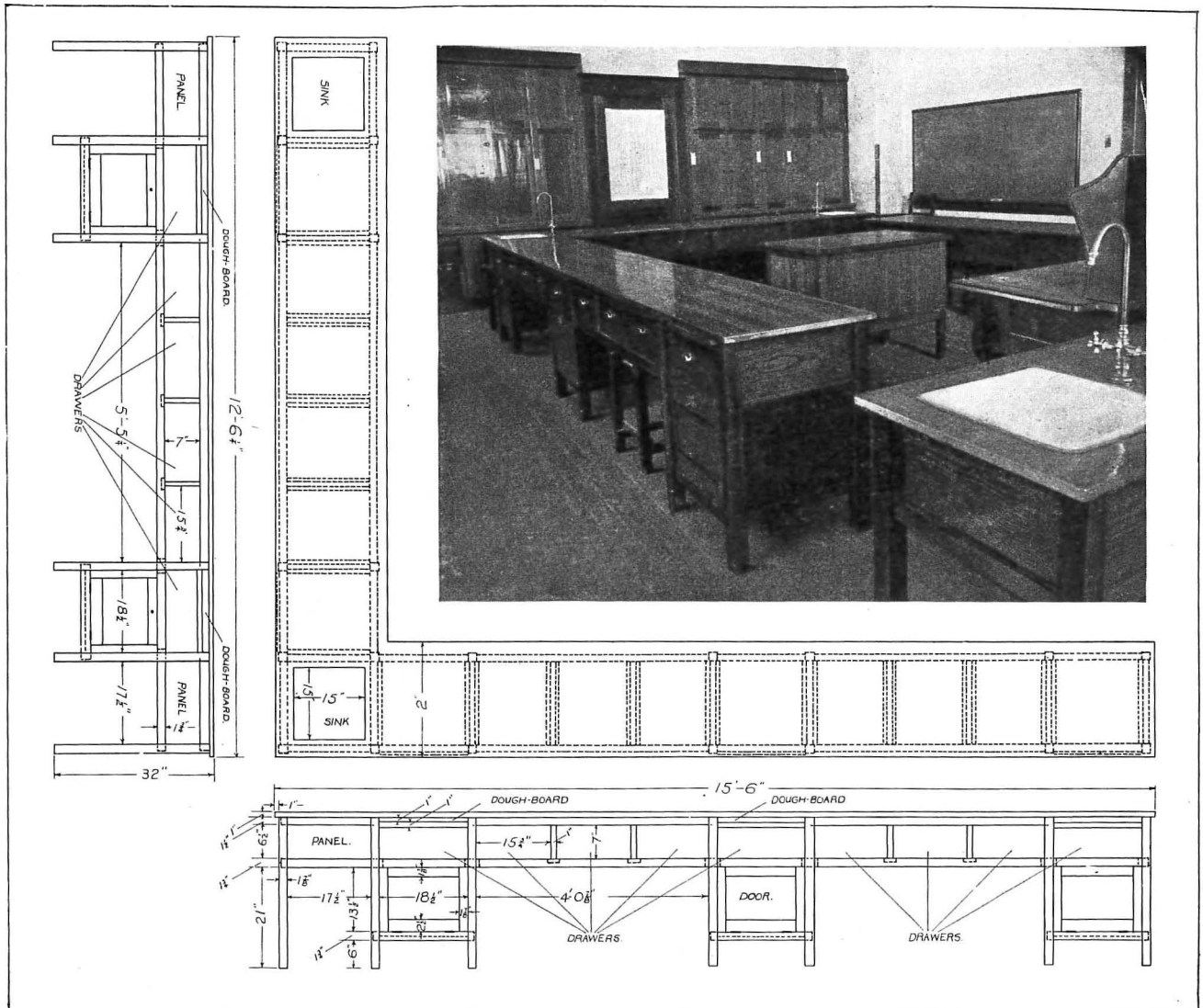
In talking over the question of equipment the board of education decided that the district should buy the needed equipment for the shops and depend on the boys for the other equipment such as tables, desks, chairs, etc.

The industrial arts course is arranged so that the boys take drawing and shopwork alternate semesters. The first semester of drawing is devoted to the usual mechanical drawing; the second, to the design of furniture and fixtures that are needed in the school building. The first semester in shopwork is devoted to hand work in wood while the second semester is almost entirely devoted to machine woodworking. During 1917-18 a great variety of

tables, desks, and cabinets have been designed, and assembly, section, isometric, detail, and "working" drawings have been made for the use of the classes in shopwork.

There is a distinct advantage in having the boys in one class make drawings for those in another class to use; namely, the boys in the drawing class realize more readily and more fully the need of correct and complete information on the drawings than when they are to use the drawings themselves. This arrangement and type of work is both educative and practical.

Some few sketches of furniture needed in the new building were sent to the drawing room where complete plans and blueprints were worked out and turned over to the shops. Here the boys were organized into groups of five. The fifth boy in each group was made a foreman and the director of industrial arts kept watch over each group so that as few mistakes as possible were made.



WORKING DRAWING OF DOMESTIC SCIENCE TABLE MADE IN THE AUTHOR'S CLASSES.

The first problem was three library tables 42" wide and eight feet long. Then eight sewing tables were made 42" wide and 6 feet long, with two drawers.

Next came the big problem of the year which was the domestic science tables as shown in the accompanying drawing and picture. Here more intensive factory methods were used. Thus two boys got out all the legs, 88 in all, laying out all mortises; another group got out the doors; another, the drawers; one boy made all the twenty dough boards which are just above the drawers in the cabinets. The tops of these tables are made of hard maple flooring, finished with two coats of the best floor varnish. These tables cost the district about twenty dollars

apiece, and the estimated cost by the local planing mill was \$55.

The class has also completed ten drawing tables, besides several large built-in cabinets in the different rooms.

It is estimated that the shops have built about \$500 worth of equipment this year. The greatest benefit has come, however, from the added interest taken by the boys in their shop courses. They see now they are really accomplishing something worth while and are very enthusiastic over their work.

Mr. L. J. Ericson has had charge of the drawing work while the writer has been director of industrial arts, in charge of the shop courses.

## HISTORICAL STYLE AND THE DESIGNER

Edward J. Lake, University of Illinois



WITH abundant material representing the industrial and artistic productions of civilizations from the earliest Egyptian to the last word in recent fashion, no person who would develop a sense of beauty and propriety for design can afford to neglect the significance of historical style.

This word "style" carries with it a larger meaning when applied to historical art than when applied to the frequent changes of modern design. A style in the arts of a period of civilization represents a use of line, form and color that expresses that civilization.

The thoughts, beliefs and aspirations of each race are expressed in their design. With a wealth of explanation and illustration available, the modern designer has made little consistent use of historical style. He has made much inconsistent use of this material.

The modern designer's inconsistent use of the historical styles has been evident in his attempt to piece together parts of different styles that express different effects and in his verbatim copy of examples of design that do not apply to the problem he has in hand.

This misuse of historical art has led to a reaction against the study of it by recent designers and even to the condemnation of such study by teachers and critics.

Much of our American school art training has consisted in a brief study of natural forms and the impressionistic representation of them. Character of form has not been committed to mind by persistent study and review thru drawing as a preparation for original composition. A premium is placed on originality by our art teachers before a conception of the significance of form and color is acquired by the students. Be yourself; Be original; Avoid the commonplace as you would a pest, are the admonitions of

art teachers and critics, yet no one would presume that such advice applies to instruction in any other subject. There is a well established understanding that originality in music or literature does not develop until the rudiments of form in these arts have been mastered.

Nature presents endless forms for the observation and study of the artist but Nature does not show these forms in their adaptation to the problems of the designer.

In historical design forms have been adapted to a purpose and under conditions that may not conform to modern purpose or conditions yet far more significant to the designer than the forms of nature.

To identify and classify the forms of nature is the work of the scientist. To identify and classify the forms of historical art is the problem of the archaeologist. The designer is not so much concerned with the natural or historical facts of form as with the expression of form in various materials fashioned for and adapted to a useful purpose.

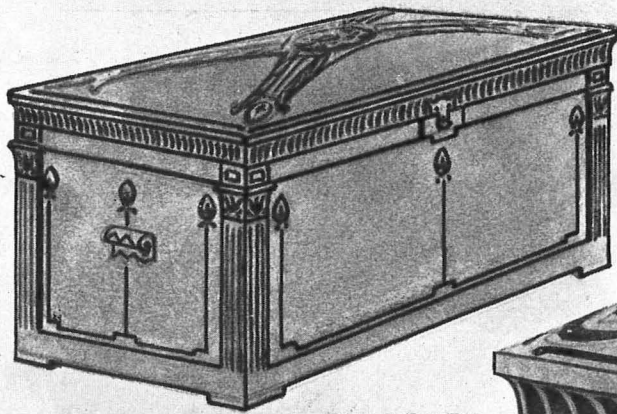
Egyptian, Greek, Roman, Saracenic, Byzantine, Romanesque and Renaissance art each become expressions of a particular beauty to the art student.

The formal dignity and reserved beauty of Egyptian art is revealed to the student who acquaints himself with the industrial design of that great civilization. Greek art sets standards of excellence in grace and proportion that have not been surpassed by humanity. The richness of sculptured form and the monumental pretense of Roman art has particular application to our modern problems of design. Saracenic, Byzantine and medieval art are rich in suggestion to the designer in plastic and textile materials.

The modern designer cannot afford to neglect these significant historical styles and should be schooled in them.



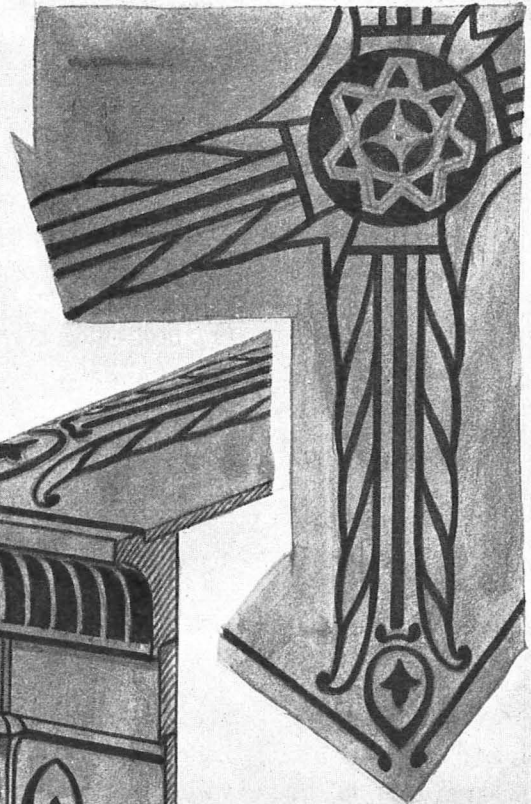
ACHEST.—THE ENRICHMENT IS IN THE CHARACTER OF EGYPTIAN DESIGN AND MAY BE EXECUTED IN FLAT COLORS.



ENLARGED  
DETAIL OF  
CHEST.



CARVED HANDLE FOR CHEST.



ORNAMENT FOR  
TOP OF CHEST.

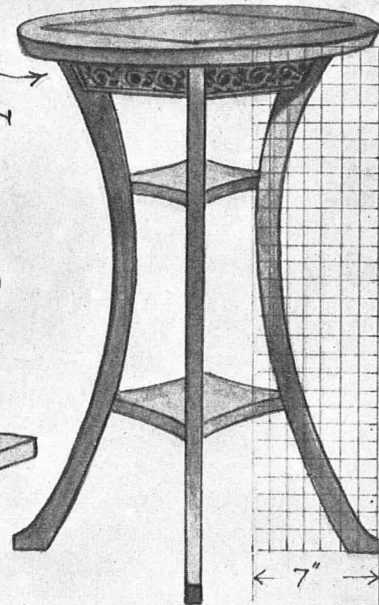


FOOT-STOOL IN DESIGN  
DERIVED FROM EGYPTIAN



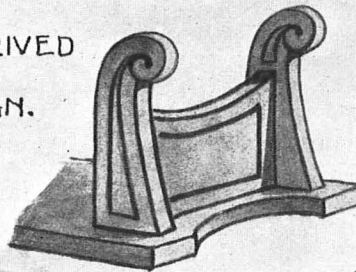
PAINTED PATTERN

A TABLE ON EGYPTIAN LINES.



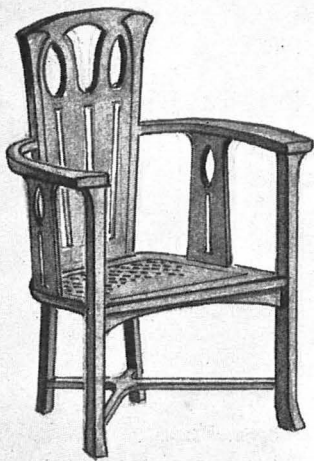
PATTERN OF LEG CAN BE ENLARGED BY SQUARES.

BOOK ENDS DERIVED  
FROM EGYPTIAN  
DESIGN.

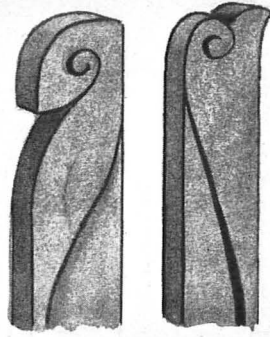


THE EGYPTIAN STYLE SUGGESTS INTERESTING TREATMENT OF PROJECTS IN WOOD, PAINTED OR CARVED OR BOTH.

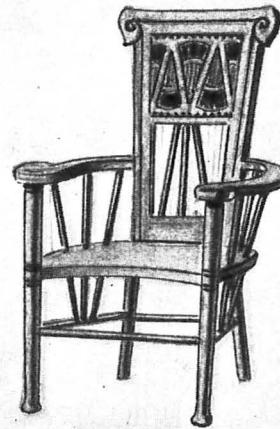




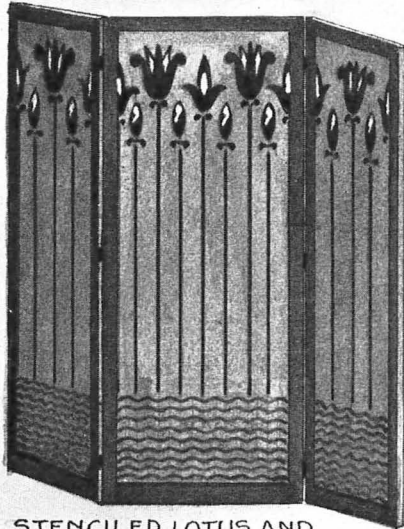
EGYPTIAN FORMS ARE  
SIMPLE AND DIGNIFIED.



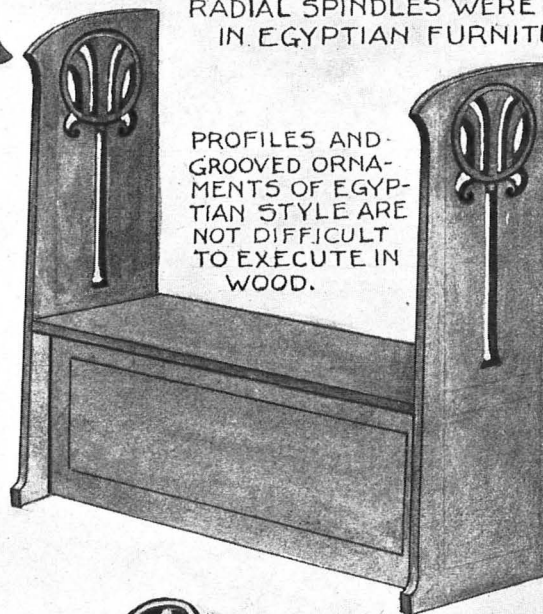
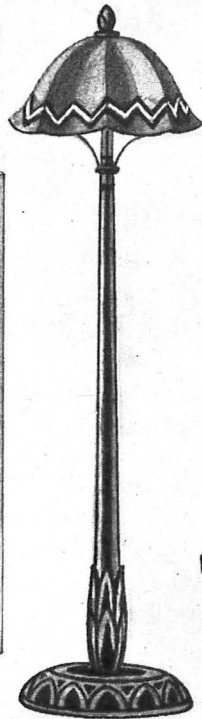
CARVED PROFILES OF  
EGYPTIAN CHARACTER.



RADIAL SPINDLES WERE USED  
IN EGYPTIAN FURNITURE.



A STENCILED LOTUS AND  
WAVE SCREEN DESIGN.



PROFILES AND  
GROOVED ORNA-  
MENTS OF EGYP-  
TIAN STYLE ARE  
NOT DIFFICULT  
TO EXECUTE IN  
WOOD.



ANIMALS AND BIRDS ARE DRAWN WITH SIGNIFICANT  
FORM IN EGYPTIAN ART — THEY SUGGEST INTEREST-  
ING PROFILE-TOYS SAWED FROM WOOD AND PAINTED.



APPLICATIONS OF EGYPTIAN LINE AND FORM TO  
THE DESIGN OF MODERN OBJECTS.

# INDUSTRIAL-ARTS MAGAZINE

## Board of Editors

WILSON H. HENDERSON

E. J. LAKE

S. J. VAUGHN

## EDITORIAL

### RE-EDUCATING THE ABLE AS WELL AS THE DISABLED.

MUCH has been written and spoken concerning the need for re-educating the disabled soldier, and few persons underestimate the need for this work. Very little has been said or written on the need for re-educating the *able soldier*. Nevertheless, this will be one of the greatest needs at the close of the war. The present demands of industry, the shortage of labor and the resulting high wages, seem to minimize the importance of this task, but when the munitions industries close, when the new ships are not needed, and the millions of soldiers return to the arts of peace, then this task will seem all-important.

During this present period of labor shortage and high wages, vocational education seems to a large majority of workers unnecessary. In many instances men are being paid double what they have ever received before. They are working longer hours with much higher pay for overtime and there is no time for school attendance. Jobs are to be had for the asking, and industries vie with one another in offering inducements for help. This will all change with the advent of peace. The millions of men now in the Army will be available, and great changes will be made in the character of our industries. This will require that many of these soldiers be re-educated to meet the new demands made upon them. Industries will have changed while they have been in the service, and, meanwhile, they will have changed. No one can predict the character of these changes, nor the character of the education that will be needed.

Under these circumstances, it would seem advisable that plans for the re-education of the disabled soldier be very closely considered. For several reasons, it would seem that real constructive re-educational work of disabled soldiers for permanent jobs can not be done until the close of the war. The demand for men who can do something is so great that any man, regardless of his disability, can get a job with good pay, at the present time. A disabled soldier recently discharged from one of our Army hospitals, who, in normal times, would have had difficulty in securing a position at \$15 a week, was recently employed at \$35 a week, in one of our large war industries. Army hospitals are being besieged with offers of positions for disabled soldiers, with pay ranging from \$75 to \$150 a month for men without

any special training. Under these conditions, the disabled man is not going to spend any considerable time taking training when he can enter industry and earn such wages as are now being paid.

The War Department has announced that it will use thousands of partially disabled men in all sorts of clerical and other positions. Several thousand men classed by the draft boards as unfit for full military duty have already been called for restricted service. The War Department has announced that it will give short courses of training to restricted service men and place them at once at work where their services can be utilized. In fact, a large part of the work being done in this country, inside and outside of the Army, is being done by partially trained men.

Under these conditions, it is impossible and impracticable to attempt to give the kind of vocational education which should be given in times of peace. The Smith-Sears law provides that the Federal Board for Vocational Education can give courses of vocational education to men disabled in line of duty. It may be possible under that law to give similar training to soldiers disabled outside the line of duty, but, be this as it may, it would seem that the Federal Board for Vocational Education should make ample preparations to enable it to give vocational education to all returning soldiers, disabled or otherwise.

This being true, the National Government should postpone all serious attempts at constructive re-education until the close of the war, and devote its attention during the war to training men, disabled and otherwise, for immediate service in what will necessarily be temporary positions. At the close of the war, the Federal Board for Vocational Education should be in a position to undertake the education of thousands of returned soldiers and train them for productive employment.

This would make vocational education a very powerful and constructive factor in tiding the country over a dangerous period of readjustment and reorganization wherein thousands of men will inevitably be unemployed, and would contribute largely to solving the post bellum labor situation. This policy, if agreed upon, would put an end to the controversy in official circles as to what agency is to control the re-education of the disabled soldiers. Army hospitals, the Red Cross, the Y. M. C. A., and all other interested agencies could devote their attention to getting the disabled soldier on his feet and into some position where he could contribute to the big problem confronting the entire nation, namely, that of *forcing a victorious and permanent peace*.

### TO THE NEW TEACHERS.

ERRORS are always dangerous and always costly. But especially dangerous and especially expensive will be the errors of the coming months. New teachers, as well as old ones, make errors. But this year it is especially and peculiarly necessary for both old and new teachers to reduce the chances of error



to a minimum. It is vastly important that every stroke and every effort be made to count at its highest value during the next year.

The new teacher will make an egregious error, if he interprets his employment to teach as a commission to revise the whole school system and to reform the town. He is employed to perform the fairly well defined duties of a perfectly definite little job.

The beginner in our work will blunder if he doesn't "saw wood," keep his eyes and ears open, his mouth closed, and his courage up.

Any teacher is in error who does not at once become an *integral part* of the system in which he finds himself, instead of remaining a kind of "detachable attachment" to the system. Hearty co-operation in spirit and deed in all school activities will elevate one very far toward success.

Anybody errs who refuses to profit by advice. One need not *use* all advice given, but one should *take* it all. In this particular, it is much better to receive than to give. The kindly advice of supervisors and teachers familiar with the situation which is new to a beginner should be treasured and thought over and followed with wisdom and discrimination.

A new teacher always errs when he thinks his supervisor wants him to fail. A teacher's failure is a partial failure at least for the supervisor. One cannot succeed or fail without materially affecting the success or failure of the other.

Failure stares the teacher in the face who does not accept the principle announced long ago, that "the first essential of a good teacher is genuine respect for those whom he teaches."

Perhaps the most helpless and hopeless blunderer of all is he who is so bound up in his theoretical dogmas, courses, and "models" that he fails to see the "human element," to feel the pulse of real life, and to hear the hungry cry of society for richer life, more efficient members, and more abundant and varied avenues to success.

#### WAR TIME ECONOMY.

IN spite of the emphasis by our national authorities on the great need of carrying on school work at full capacity and schedule during the war there is evidence of retrenchment and false economy in some schools. One large city that has acquired a most enviable reputation for efficient teaching of the industrial arts thru the constructive genius and energy of former officials has during the past year dropped half of the teachers of this and some other subjects.

Of course this action was taken under the guise of economy yet we note that the salaries of those "higher up" were materially increased. We doubt if the salary budget has been decreased and we doubt the possibility of economy by decreasing salary budgets at this time.

There should be an increase of twenty per cent in teachers' salaries over last year to compensate teachers for the increase in the cost of living.

While many of the best teachers have gone into military service at a sacrifice of salary, health and even life, it seems poor executive efficiency on the part of school officials to barely keep the home fires burning by a reduction of the teaching force.

No regrets need be wasted on teachers dropped in the name of economy.

The market for teachers was never stronger than now and no good teacher need go unemployed. This is especially true of teachers of the industrial arts.

Attempts at school economy by a reduction of the teaching force and a failure to increase teachers' salaries in proportion to the increase in other occupations are to be interpreted as a lack of executive ability on the part of school officials.

The American people are not more generous in carrying on war than in carrying on their schools and we have seen examples of executive skill on the part of war officials that school officials might well emulate.

#### SHALL WE REVERT?

THAT "History repeats itself" is but evidence of the indirect progress of humanity. Human activity is directed in cycles rather than straight lines. A new conception is followed blindly until reason and experience directs the course and reverts to forsaken and forgotten methods. There is a growing suspicion that school instruction is ready for reversion to some methods that have been condemned in the past but that may now be revived with better use and understanding. This is especially true of Art Instruction.

The soft pedagogy of the art teacher presumed that since the finest of art productions are individual and emotional, children in the schools could be taught to appreciate and execute works of art by reducing the technical difficulties to a minimum and raising the emotional conceptions to a maximum.

The results of this method are disappointing. There is not strong evidence that the youth of our secondary schools have either judgment or skill in art as applied to their daily needs. There is evidence that they do not even take art instruction seriously after the early grades. The idea that appreciation of beauty and of propriety can be independent of understanding and skill is false. Interest in appearance is aroused by understanding and execution. To say that execution to cultivate appreciation need not be carried to the point of acquiring accurate skill is also false for it is only the appreciation of the fine points of a work of art that is worth while. Evidently we may consider the individuality of the school pupil as expressed in his attempted work of art as of less importance than his development of understanding and appreciation.

With the evidence of past failure before us may we not conclude that it is worth while for the school pupil to learn the construction, proportions, values and composition of a fine piece of work by the occasional copying of these elements accurately? Let us revert in our art instruction to the judicious use of copying in place of futile attempts at emotional invention.



# INDUSTRIAL AND RECONSTRUCTIONAL EDUCATION IN THE UNITED STATES MILITARY HOSPITALS

The work of rehabilitating disabled soldiers in France and in the United States has been going on for more than a year in a number of United States military hospitals under the control of the Surgeon General, and but little has been published about the important service which the war department has been rendering in this direction. The fact that hundreds of men have been receiving instruction and that upwards of a thousand are now in hospitals and are doing work which will lead not only to their physical and mental rehabilitation, but also will constitute them self-supporting members of society has been over-shadowed by announcements of plans for civil reconstruction which are to be put into effect by the Federal Board of Vocational Education.

In an official announcement, recently authorized by the Surgeon General, the completion of the plans for vocational work in the military hospitals has been made public. According to this announcement fifteen hospitals have been designated for the present for the work of physical reconstruction. The lines of work, while they are being constantly modified, have been fairly well determined as based on experience of the past year, particularly at Fort McHenry and in the Walter Reed General Hospital, Washington.

The Surgeon General's office has the records of 516 cases treated in four hospitals. These show that 134 men have been returned to full military duty, 210 have been fitted for limited service and 172 have been made eligible for discharge. In the last group 121 are ready to return to their former occupations, 39 will require further training to fit them for earning a livelihood, and 12 are helpless institutional cases.

The foregoing figures will give a fairly good clue to the work which is being done in the hospitals and the probable work which will be necessary in the civilian schools for the reconstruction of disabled soldiers.

## Most Pressing Need.

The task of fitting men for further military service is at present considered the most pressing need because wherever an able-bodied man behind the lines can be replaced by one less fit physically, but vocationally capable, a soldier is gained for active duty. The reconstruction work will emphasize technical training capable of adaptation to the physical limitations of disabled men and in which employment will act as a therapeutic agent. When play and work and study will help a man to get well, this kind of medicine will be prescribed to the patient. If the work leads to further army service or to better prospects in civilian life so much the better.

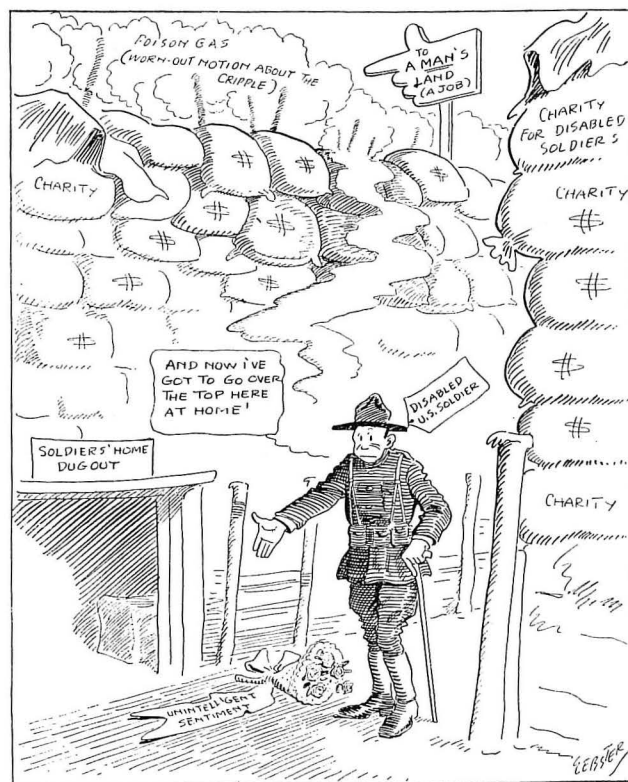
## Hospitals Designated.

The Surgeon General has designated the following general military hospitals for the work of physical reconstruction:

Walter Reed General Hospital, Washington, D. C.  
General Hospital No. 2, Fort McHenry, Md.  
General Hospital No. 3, Colonia, N. J.  
General Hospital No. 6, Fort McPherson, Ga.  
General Hospital No. 7, Roland Park, Baltimore (for the blind).  
General Hospital No. 8, Otisville, N. Y.  
General Hospital No. 4, Fort Porter, N. Y.  
General Hospital No. 9, Lakewood, N. J.  
General Hospital No. 11, Cape May, N. J.  
General Hospital No. 16, New Haven, Conn.  
General Hospital No. 17, Markleton, Pa.  
Letterman General Hospital, San Francisco, Cal.  
United States Army Hospital, Fort Des Moines, Ia.  
Plattsburg Barracks Hospital, Plattsburg Barracks, N. Y.  
General Hospital, Fort Bayard, N. Mex.

## Policy to Be Followed.

The policy to be followed in these hospitals is that no member of the military service disabled in line of duty, even tho not expected to return to duty, will be discharged from service until he shall have attained complete recovery or as complete recovery as may be expected. In furtherance of this policy, physical reconstruction is defined as complete



Webster in Carry On.

mental and surgical treatment carried to the point of maximum functional restoration, both mental and physical. To secure this result all methods recognized by modern medicine as conducive to cure will be utilized. In other words, not only the means of medicine and surgery will be utilized, but also physical measures such as are employed under physiotherapy. Provision in the form of buildings and equipment for physiotherapy have been adopted in each of the hospitals.

## Functional Restoration Final Aim

Modern medicinal treatment does not end with physical cure. Functional restoration is the final aim of the modern physicians and surgeons. It is conceded that the physical rehabilitation of disabled men is peculiarly dependent upon their mental attitude. The more serious the disability, the greater the danger of mental depression and an indisposition to respond to medical and surgical treatment. The educational work should begin, therefore, at the moment when the man has arrived at the stage where he begins to worry about his future. The first problem is to divert his attention by simple recreation, thru reading, games, handiwork occupations, and the like, with a view to securing a genuine interest in the attainment of some worthy end—the end most certain to hold his attention and to claim his best efforts in his future vocation. Hence, by gradual steps he may be induced to supplement his previous vocational experience by academic, scientific, or technical instruction, or to choose a new vocation and begin preparation for it if such a course is necessary.

## Need of "Cheer-Up" Work.

The need of "cheer-up" work in the hospitals extends to all who are capable of planning for their own future. This means a relatively large proportion of the entire number. The beginning is made at the bedside with handicrafts of various kinds grouped under the term "occupational therapy." When the man is able to leave the ward and can be benefited physically by technical training, he has the opportunity of working at specific trades either in the curative workshop, in specially provided classrooms, or out of doors.

The teachers for this work have been secured from the convalescent disabled soldiers who are skilled in their vocations and from the enlisted personnel of the army secured by transfer or by induction of registrants disqualified for general military service but qualified for special limited service. These instructors work under the direction of educational officers chosen for their professional standing and commissioned in the Sanitary Corps of the Medical Department. The General Staff has authorized commissions for 119 educational officers for this purpose.

#### Three Classes of Disabled Soldiers.

From the military standpoint disabled soldiers may be placed in three general classes:

- (a) Those who can be restored to full duty.
- (b) Those who can be fitted for limited service.
- (c) Those disabled to the extent of unfitting them for further military service.

It is the announced policy of the Surgeon General that patients of the first class should have the benefit of therapeutic treatment in order that their morale may be stiffened, their special skills improved, their future usefulness increased, and their recovery hastened.

Patients of the second class should have, whenever the medical officers approve, such specific training—physical and vocational—as will best fit them for limited service of a particular kind. At present patients are being trained in general hospitals for service as general and vocational teachers, typists, printers, tailors, cobblers, harness makers, welders, motor mechanics, painters, machine workers, woodworkers, bookkeepers, statisticians, telegraphers, photographers, telephone operators, cooks, storekeepers, electricians, etc.

#### List to Be Extended.

The list will be extended with the advice of the committee on education and special service of the war department to meet other needs as they arise. In connection with the large general hospitals there is abundant opportunity for practice in many trades and occupations. At Fort McPherson, for example, practical experience can be gained in 20 different trades. Moreover, there is immediately adjacent to the hospital a large quartermaster's mechanical repair shop, covering all phases of mechanical repair and construction to which men can be assigned for limited service or to gain experience.

Patients of the third class will be encouraged in every possible way to accept the benefits accorded them for vocational training by the Federal Board for Vocational Education. To this end they will have while in the hospital such physical training and general education as will best promote their physical reconstruction and at the same time contribute most to their vocational training.

#### A CONSERVATION AND THRIFT PLAN.

Unexpected resourcefulness on the part of the American people has been demonstrated in thousands of situations since our entry into the war. In fact, the present generation would never have suspected the vast amount of originality and adaptability of public officials and private citizens had not the necessities of the war thrust themselves upon the people. In the schools this same resourcefulness has shown itself in numerous plans for economy and for teaching the lessons of the war.

An illustration of an original plan developed in a single school is the organization of the "Allied Bank of Conservation, Thrift and Success" in the Francis W. Parker School of Chicago. The faculty of the school early in the spring felt the necessity of providing a means for teaching thrift and conservation during the remaining months of the school year and of providing an efficient means for continuing the practice of thrift and economy during the long summer vacation. A "bank" was decided upon as a most effective means.

To initiate the plan a patriotic meeting was held at which all the pupils and the teachers attended. At this meeting thrift pledges were distributed and signed, and a number of talks were made by the teachers explaining the necessity of conservation and of thrift and the value of these practices to the children and to the nation at large. The idea of the bank was explained as a record of the children's actual daily exemplification of the practices of conservation and thrift.

To make it possible for each child to become a depositor in the bank, bank books were distributed in which each child might record, during the remainder of the school year and during the summer season, each daily or weekly act of conservation and thrift.

### Pledge

**I know** that the winning of this war depends not only upon the fighting in France, but upon the steady effort of every person here in this country - effort to make that fighting effective; effort to preserve this nation's health and vigor until the time shall come when she may aid exhausted Europe.

**I therefore pledge myself** to try to save each day some share of food, of material or of labor which may in some small measure help my country to win this war.

Signed \_\_\_\_\_

Co-operator \_\_\_\_\_

Form of Pledge used by Parker School Pupils.

The bank books were provided by the printing department of the school under the direction of Mr. Leonard W. Wahlstrom. The books measure 4½ by 6½ inches and are ruled and printed similar to a savings bank passbook. They contain on the front cover the following:

Book No. ....

#### ALLIED BANK OF CONSERVATION THRIFT AND SUCCESS

Francis W. Parker School  
330 Webster Ave.  
Chicago

Name. ....

In Trust for the Future of  
the Nation

HELP WIN THE WAR

As a guide to the child in recording his acts of conservation the following list of suggestions is given:

1. Try to keep the school pledge.
2. Grow raw materials in gardens.
3. Make something for our first bazaar.
4. Make something for victims of the war.
5. Keep yourself informed about the course of the war.
6. Never allow any flippant speech or disloyal speech in your presence without protest.
7. Release adults for war work by doing as much of their work as you can and by saving their energy in every possible way.
8. Help willingly all war activities wherever you are in any service you are asked to give.
9. Eat home grown vegetables to save grain and transportation. Keep yourself informed of the recommendations of the food administration regarding pork and beef products and follow them.
10. Learn to eat substitutes which you now dislike.

11. Wear simple clothing. Do not waste wool, cotton, linen or leather thru carelessness and extravagance.

12. Show to your companions thru word and action that you understand the great issue of this war, that you tolerate no flippancy or disloyalty in others and that you give yourself wholly to the furtherance of the war and its ideal of democracy.

The first blank page of the book contains the following:

Name of child.....

In account with the ALLIED BANK OF  
CONSERVATION, THRIFT  
AND SUCCESS

*Deposited to the Credit of the Nation.*

The following thirty blank pages afford space for recording time spent in war work, garden products harvested, time spent in assisting or replacing adult labor, time spent in house work, material salvaged from waste products, taste cultivated for substitute foods, time devoted to home charities and welfare work, miscellaneous acts of conservation and thrift. At the bottom of each page there is an appropriate slogan such as Conquering Waste is Winning the War; Make Saving Fashionable; To Win—Produce More, Eat Less; Don't Be Finicky.

The pupils displayed considerable interest in the movement and inquiries among the children showed that the plan was quite successful. The plan is easily adaptable to any school and may be varied to meet local conditions.

## TOY MAKING FOR SANTA CLAUS AND UNCLE SAM

E. M. Heath, Editorial Division of Junior Red Cross

Bisque Doll and Jack-in-the-box, Wooden Dog and Rag Cat and Penny Bank—the whole merry crew that makes its perennial debut around the Christmas tree on December 25, were hit pretty hard by the war. "Made in Germany" Christmas presents for 1917 were more explosive than the largest popgun and their arrival "at the front" occasioned ear-splitting din greater than any number of toy drums, horns and whistles. Germany was making Big Berthas for the crown prince instead of bisque Minnas and Gretchens for Santa Claus. Needless to say, Santa Claus wouldn't, in any case, have taken the responsibility for the good behavior of a 1917 Minna or Gretchen. Her flaxen-haired, blue-eyed innocence might have concealed a bomb!

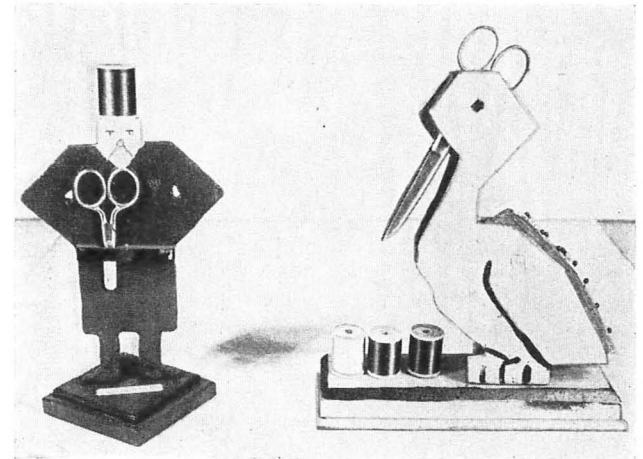
In October, 1917, predictions in Los Angeles were rife that the world's chief toy merchant would have to go into bankruptcy for lack of stock. When the Red Cross officials heard that rumor they knew something must be done to avert such a calamity. They went straight to Santa Claus' most intimate friends, the boys and girls (who, of course, were all junior members of the Red Cross), and asked them to go into partnership with him.

The public school branch committees of the Red Cross shop won the consent of Supt. Edward Shiels to these plans. Then they visited each school and determined, with the help of the manual training supervisor, what toys each was best fitted to supply. The committee's purchasing agent supplied the schools with materials as they needed them.

Soon every school workshop in Los Angeles looked, sounded and smelt like a toy factory. Children were busily tracing the designs on wood, cutting them out with scroll saws, pounding nails, dabbling in glue, mixing paint, applying primer, brushing on enamel, delving in fact into all the secrets of toy making. Two months later, the output was arriving by the wagon-load at the Red Cross shop. By squads, by companies, by regiments, the brilliant army was marshaled on shelves. Indians, policemen, soldiers, Red Cross nurses, geese and rabbits, lions, chickens, rhinoceroses and kittens, ducks, and automobiles and elephants—all stood stiffly at attention. Even the rabbits on wheels kept quiet and the "playing cat" forgot to chase her ball, while Punch didn't dare to try a swat at Judy. They were all waiting, eyes front, for the order to "forward march" into someone's Christmas stocking.

The shop was filled with more pretentious articles made in the schools: pottery, hand-tooled leather, hammered brass and copper, jewelry, rag rugs, woven baskets, knitting bags, furniture, hand-woven lace, jams, jellies and cakes. More than 8,000 articles had been made in the past two months. Crowds of holiday shoppers came and went. On the night before Christmas the shelves were bare and the children had given the Red Cross a Christmas present of \$1,586.00.

Several toy merchants wanted to buy toys wholesale from the schools. Plainly there was a permanent call for the denizens of toyland, and so the shop continued business after the holidays. Toy making has become a permanent school industry in Los Angeles. The boys and girls in the ordinary pursuit of their education are supplying a real market and upholding the commercial honor of their country.



Vogue Articles for Red Cross Sales.

Los Angeles was not the only city where school children supplied the Christmas trade in part, and produced a revenue for the Red Cross. Similar bazaars were held in a number of cities with splendid success.

In Milwaukee the school bazaar lasted only one day, but handled in that brief time as many articles as the Los Angeles shop. In Chicago the schools sold several thousand pieces of furniture, toys, textile articles, etc., in a bazaar that lasted several days and turned over to the Red Cross several thousand dollars in cash.

It is the purpose of the Junior Red Cross that December shall be a bazaar month for the schools thruout the country. The Junior Red Cross chapters in the schools are being asked to prepare stock for a December bazaar and the co-operation of art classes, manual training departments, sewing and millinery classes is being asked.

It is the belief of the Red Cross officials that the schools will do better work than ever if they direct at least a part of their attention during the fall to the making of products for Red Cross bazaar sales. It is certain that the children will put their hearts in this work for Uncle Sam and will put many dollars into the Junior Red Cross school fund.

The Junior Red Cross has prepared a manual for teachers which is to be distributed shortly to the local chapters thru the Bureau of Junior Membership in Washington. This manual is to contain directions and designs for the making of toys. The following technical directions for toy making are a brief abstract from this manual:

### Technical Directions for Toy Making.

**General Purposes**—First, to practicalize the manual training work by raising its educational, art and practical qualities to a marketable standard. Second, to enable every child to make toys and other things of salable quality and thereby to foster a national industry.

The specific and present purpose is to concentrate the manual training work for war purposes and to facilitate the



production of articles which may be sold at December bazaars for the benefit of the Red Cross.

The work outlined consists of painted wooden toys and painted vogue articles. Toys are practical articles. Vogue articles are not toys but are objects of different practical uses. The designs of these toys and articles are characterized by a freedom from the accepted styles. They are a revival of national art instincts, expressing freedom in design and color and embodying humor, caricature, quaintness and individuality.

The field for such toys is almost unlimited and the educational and practical possibilities are hardly calculable.

*Painted Wooden Toys*—These toys are of two classes: First stationary toys made by combining two or more pieces of material brilliantly colored; and second, mechanical toys that go and are built on some mechanical principle, such as the wheel and axle, etc.

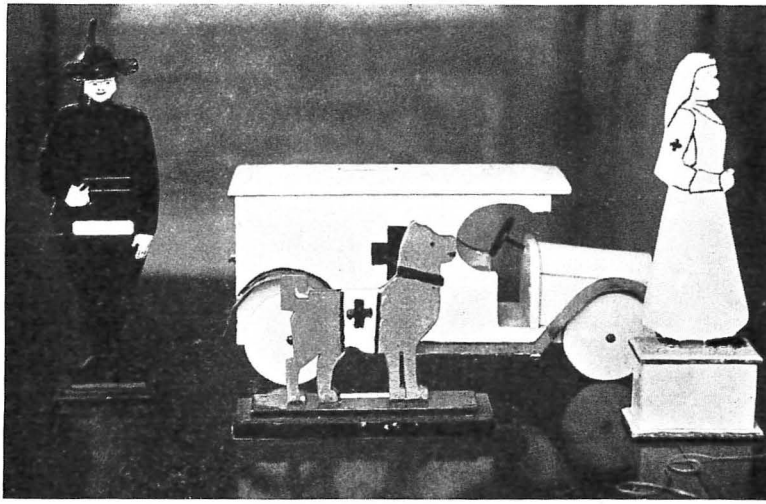
*How to Pick Motifs*—The toys are drawn freehand, but any pictorial or linear designs from books, magazines, or posters may be used. These may be cut out of the book, or they may be traced. It is highly desirable that the natural motif be conventionalized to suit the material. This process consists in simplifying and squaring the outlines of the motif so that the design may express the characteristic of the material of which it is to be executed.

*Toy Motifs*—The human motifs may include Uncle Sam, sailor, soldier, nurse, policeman, Indian or Santa Claus. The animal motifs may include the cat, dog, elephant, lion, horse, cow or rabbit. The bird motifs may include the chicken, duck, ostrich or swan. The transportation motifs may include the automobile, locomotive, wagon or delivery truck. The marine motifs may include the lighthouse, steamboat or sailing ship. The habitation motifs may include the church or castle.

It is evident that this list may be extended indefinitely. Complex moving toys may include carts, rockers or cradles. Any animal or bird motif may be used in building doll carts, wagons, cradles, doll rockers, etc., also nursery furniture.

*Transferring Pattern to Wood*—First, place a carbon paper on the wood, and the pattern on top of the carbon paper, tracing with pencil in the outline. Second, paste the picture of the pattern on the wood. Third, trace on thick paper and cut out templates; then trace with pencil around the edges of the template. This method is best for school work because the templates if correctly made may be used permanently as patterns.

*How to Cut Out Toys*—The toys are cut out with the coping saw. Each pupil must have a saw jack or an adjustable saw table. The adjustable table is placed in a vise and the pupils may sit or stand. The pupil's position should be comfortable and natural, and the piece of work should not be more than six inches below his chin. This enables the pupil to blow the saw-dust away and to keep the line clear. The sawing may be done with a scroll saw.



Toys for Red Cross Sales.

*Making Bases*—The construction and design of bases is important. A poor base spoils the toy. The bases should be statuary in design. A base is made of at least two pieces, one overlapping the other. They should be square, oblong, or round as the case requires. Strips of  $\frac{1}{4}$ ",  $\frac{3}{8}$ " and  $\frac{1}{2}$ " stock are prepared by the larger boys so that the smaller boys may cut from these the required lengths. This sawing off is done with a hack saw in small miter boxes made for the purpose. The dimensions of these miter boxes are 1" deep, 2" wide inside, and 12" long. Always have "fresh cuts" in the miter box, insuring "square cuts" and cut "to line" and "to finish." No planing, no filing.

One piece of the base is thicker than the other. For smaller toys  $\frac{1}{4}$ " for the upper and  $\frac{1}{2}$ " stock for the lower part. Larger toys require a combination of  $\frac{1}{4}$ " and  $\frac{3}{8}$ ", to make a more substantial base of massive effect.

*Assembling the Toys*—The toy having been cut out and the base pieces cut, the assembling begins.

First, place the toy in the vise "feet up" and put glue on the contact points. Second, nail the upper piece of the base to the toy, using brads,  $\frac{3}{4}$ " or 1" as required. Third, turn over and nail the toy to the thick base, using escutcheon pins, one pin to each end. The extension of the lower piece is equal to the thickness of the upper piece. This rule gives a certain character to the work. Sandpaper off the rough parts and the woodwork is finished.

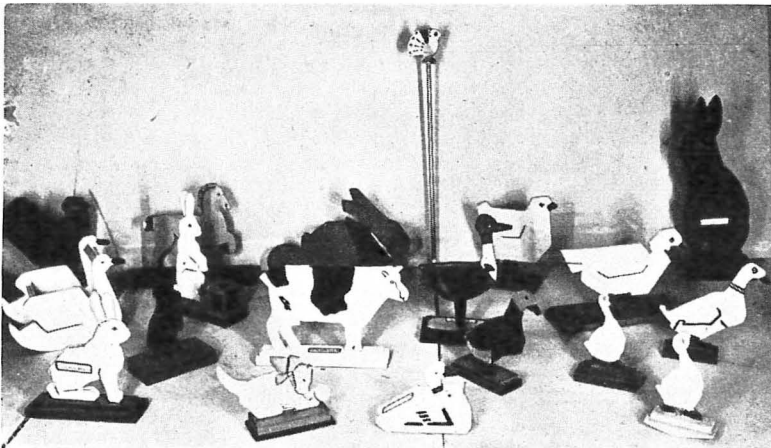
*How to Line*—In cutting out the contours with coping saw "cut on the line" and "cut" to "finish." No filing on the edge work. In cutting off base pieces in the miter box, cut on the side of the line and "cut to finish." No block planing.

#### Coloring the Toys.

The toys are colored by first applying a primer coat and then enameling.

The toys must be given a primer coat. When a large number of toys is made the dipping process is the quickest. This, however, requires more paint than the brushing method. The best method for ordinary school work is to paint the toys. For the first coat use ready made white lead or a flat white tone. Brush on the paint with a flat sash tool brush not less than one inch wide. After the first coat has been applied allow the toys to dry for a week. At the end of the drying period sandpaper with No.  $\frac{1}{2}$  or No. 1 sandpaper.

*Enameling*—The coloring of the toys is done with colored enamel. If colored enamels are not available, a white enamel may be used by mixing small portions of colors ground in oil. The enamel is applied with camel hair brushes. For features on small toys, use No. 10 artist's flat brushes. Natural details and linear effects should be avoided. It is desirable to conventionalize the eyes, ears, mouths, dotting them in with the point of a tooth pick.



Fourth Grade Productions, Los Angeles, Cal.



**Color Schemes**—Color schemes must be studied. The easiest color schemes are those produced with analogous hues or analogous shades.

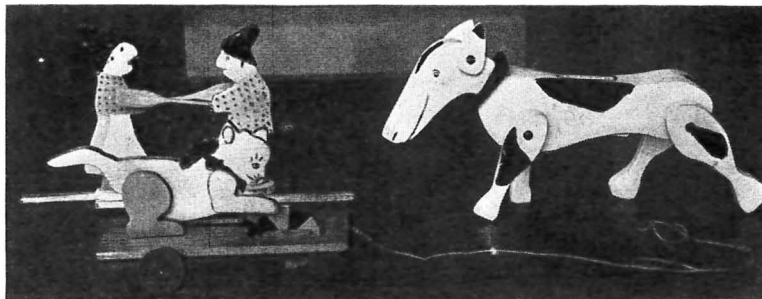
**Materials**—For the toys listed above, yellow pine or white wood, S2S, kiln dried, clear and milled, may be used in the following sizes:  $\frac{1}{4}$ "x8",  $\frac{3}{8}$ "x8",  $\frac{1}{2}$ "x12",  $\frac{3}{4}$ "x12". Wire brads  $\frac{1}{2}$ ",  $\frac{3}{4}$ " and 1" should be used. Also blue shingle nails,  $\frac{3}{4}$ " cigar box nails and  $\frac{1}{2}$ " and  $\frac{3}{4}$ " brass escutcheon pins.

As an alternative for the painting method suggested, a mat or dull finish may be given. If this is desired the first coat is produced with flat tone and a second coat consists of white lead and colors ground in oil.

The toys suggested can be made in the fourth and fifth grades but similar work which is more complicated in character can be made also in the upper grades.

utilized for the work. The twenty per cent available for day, evening and part-time schools in vocational home economics for 1918-19 amounts to \$3,289. There is still some money available for trade instruction for girls in all-day, part-time and evening classes.

In discussing work in trades and industrial education, it is pointed out that most of this training will be developed in the large cities, because there the industrial workers are found and can be organized for instruction in connection with daily employment. About 35 schools have been visited relative to organizing some vocational industrial work. Eighty students were enrolled in day and evening vocational, trade and industrial classes. During the year 1917-18 no teacher training fund for this work was used because the institutions designated for it could not make the necessary preparation. It is expected that the fund will be used the next year as one state institution has already made plans for the work.



TOYS MADE IN LOS ANGELES FOR RED CROSS SALE.

#### VOCATIONAL EDUCATION IN TEXAS.

The Texas State Board of Vocational Education has issued a statement discussing the progress of vocational work under the Smith-Hughes law.

The Texas board, on September 1, 1917, appointed J. D. Blackwell to be director of vocational training for the state; R. G. Bressler was secured as assistant director of agricultural education, Miss Nina B. Crigler was appointed director of vocational home economics, and N. S. Hunsdon was made director of trade and industrial education.

The Texas plans for vocational agriculture were among the first to be submitted to and approved by the federal board. Not only the forty schools making application for federal aid have been visited but a number of prospective schools have been encouraged to apply for aid during 1918-19. Monthly visits have been made to schools receiving federal aid for vocational agriculture and two of the state institutions, A. and M. College and Prairie View Normal and Industrial School, have met the requirements for federal aid for teacher training in agriculture.

During the past year the A. and M. College has had 72 students enrolled in such courses. In addition to the students in regular courses, thirty students were enrolled for the special course for teachers of agriculture offered during the summer.

Approximately five-sevenths of the amount available for teacher training has been utilized during the past year and it is expected that practically the entire fund will be used during the next year.

The most difficult problem confronting the state boards of vocational education has been the lack of qualified teachers. Many of the best men accepted positions in neighboring states because of the higher salaries paid.

Miss Nina B. Crigler, director of vocational home economics, during her term of service, has visited forty schools and distributed bulletins pertaining to the work. Three schools, at Dennison, Sherman and Manor have been granted federal aid after meeting the requirements. Four evening schools in home economics were opened and one institution of higher learning, the College of Industrial Arts, qualified in teacher training. A total of 580 students were enrolled under ten teachers. Practically all of the amount allotted for teacher training has been used.

It is estimated that the amount available for teacher training next year will be \$10,354 and that all of the fund will be

#### THE MAN AND HIS LATHE.

Edgar A. Guest.

I'm standing at my lathe all day  
And this is what I hear it say:  
"The best of you, the best of me  
Are needed now across the sea.  
We do not hear the cannon roar,  
No aeroplane comes sailing o'er  
Our heads, and yet from day to day  
We two are soldiers in the fray."

"Oh, hand that guides me now, be true!  
A mighty task is mine to do;  
'Tis time to shape and cut the steel  
With every turning of my wheel.  
I'm building for that better day  
When tyranny shall pass away.  
Speed up! Speed up! This thing I make  
May save a thousand lives at stake."

I whisper to my lathe: "Be strong,  
We toil today to right a wrong.  
Some of us march to fife and drum,  
My music is your busy hum,  
And this the hymn you sing to me  
Always, 'My Country, 'Tis of Thee'.  
This very day, this very hour  
We'll serve the flag with all our power.

"Oh lathe of mine, across the sea  
They need the work of you and me;  
They will be fine if we be true;  
They'll hold the line, if we but do  
This task that now to us is set;  
Let's keep the faith and not forget.  
Speed up! Speed up! Across the sea  
Our soldiers wait on you and me."

—Detroit Free Press.

# PROBLEMS AND PROJECTS

The Department of Problems and Projects, which is a regular feature of the *INDUSTRIAL-ARTS MAGAZINE*, aims to present each month a wide variety of class and shop projects in the *Industrial Arts*.

Readers are invited to submit successful problems and projects. A brief description of constructed problems, not exceeding 250 words in length, should be accompanied by a good working drawing and a good photograph. The originals of the problems in drawing, design, etc., should be sent.

Problems in benchwork, machine shop practice, turning, patternmaking, sewing, millinery, forging, cooking, jewelry, bookbinding, basketry, pottery, leather work, cement work, foundry work, and other lines of industrial-arts work are desired for consideration.

Drawings and manuscripts should be addressed: The Editors, *INDUSTRIAL-ARTS MAGAZINE*, Milwaukee, Wis.

## A MODEL FOR THE DRAWING ROOM AND SHOPS.

LeRoy A. Prescott, Hackley Manual Training School, Muskegon, Mich.

In the designing and making of projects for the school shop, the construction which comes in for the most use is the joint which has two stringers coming into a leg at right angles to each other as shown in Fig. I.

The model which is represented was made for the purpose of demonstrating to the student more clearly just how such a joint is made and the proper method of drawing and dimensioning the details of it, for if a boy can be made to understand thoroly the construction of his project while he is designing it, he will have a much clearer conception of how to go about constructing it.

The lower drawing in Fig. I shows the joint as it might appear in the front view of a project such as a foot-stool or umbrella rack. Section A-A shows how the joint would look if a section of the leg were removed, so that when a person looks at the top of it the tenons are exposed to full view.

Fig. II shows a perspective of the model with the section of the leg raised so that the tenons are exposed to view.

The model can be made from white pine and finished with shellac. The leg is  $1\frac{1}{2}$ " square and the stringers are  $3\frac{1}{2}$ " wide by  $\frac{3}{4}$ " thick. In making it, first locate the  $\frac{1}{4}$ " dowel pins which are used to hold the removable section of the leg in place. Square up the leg stock about 1-16" oversize. Cut off the section and square both sides of the cut, so the section removed will set squarely against the rest of the leg.

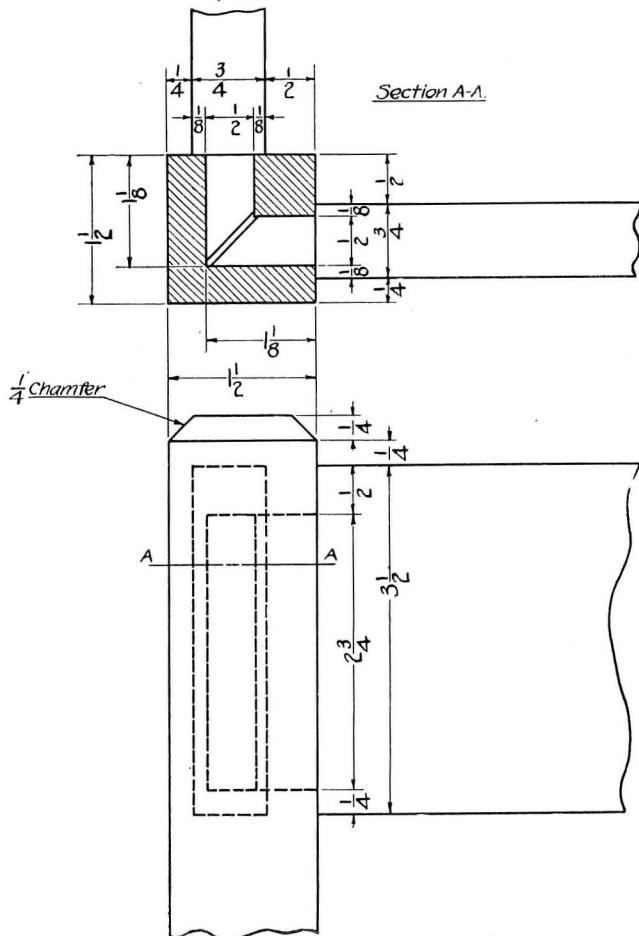


Fig. I.

Next lay out the holes for the two dowel pins, being careful to keep clear of the space for the mortises. Bore the holes in the two parts about  $\frac{3}{8}$ " deep with a  $\frac{1}{4}$ " bit and glue the dowel pins in the top section, leaving about  $\frac{1}{4}$ " of the pins exposed. Put the two parts together and dress the leg down to the required size. The 1-16" oversize should take care of any variation which might occur in laying out and boring the holes for the dowel pins.

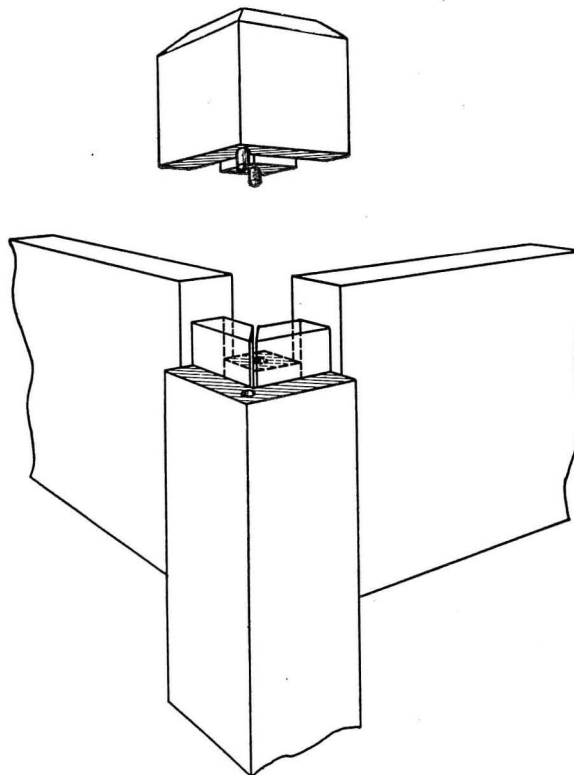


Fig. II.

From then on it is the same as making any similar joint, except that one should remember in laying it out that about  $\frac{1}{2}$ " of the mortises should be cut from the removable section so that when the section is removed the tenons will be exposed. The dowel pins will serve to hold the leg together while the mortises are laid out and cut. The joints should be tight so the stringers will stay in place without holding.

After the parts are shellaced the 45° section lines shown in section A-A (Fig. I) can be put on the leg with India ink so that the model will look the same as the drawing.

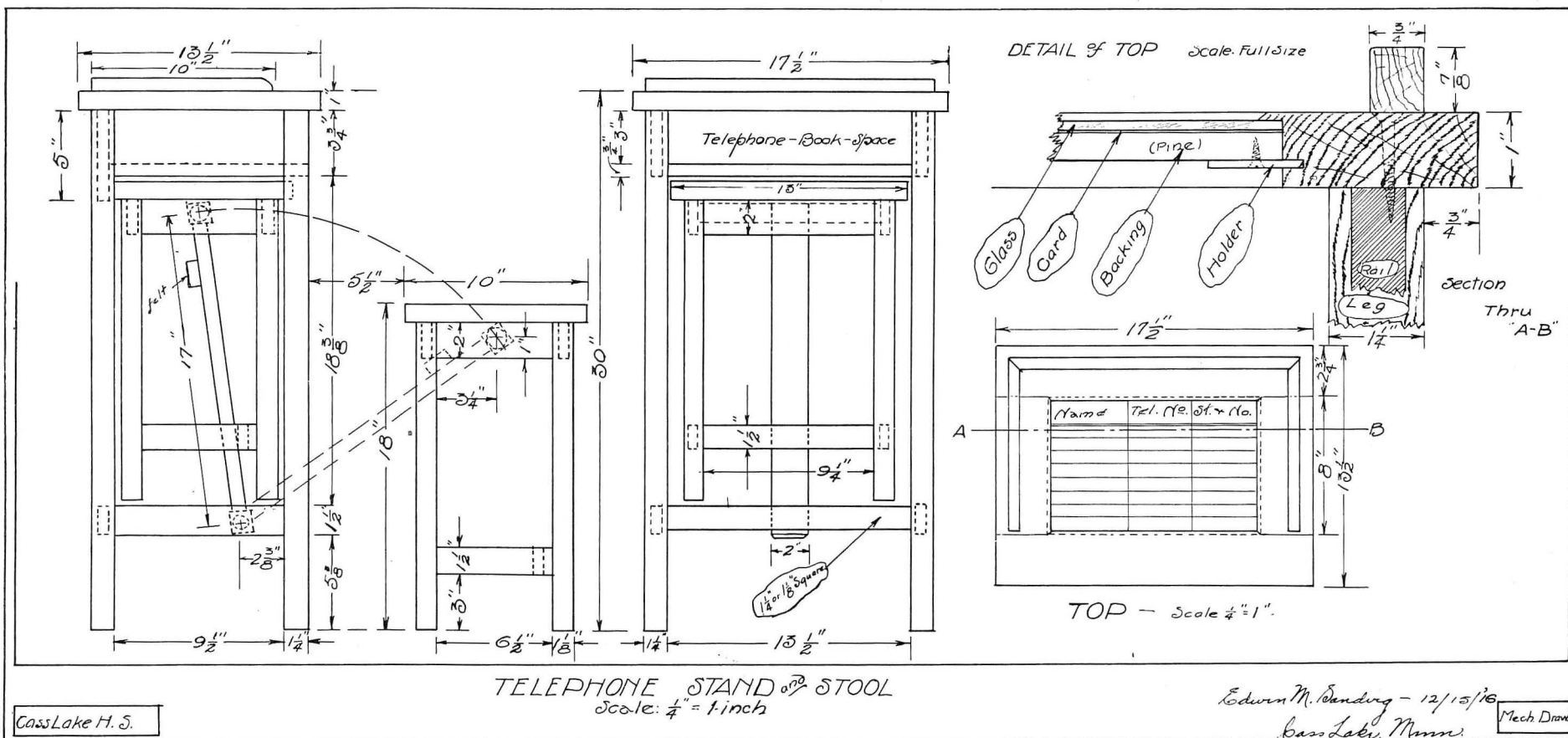
## A TELEPHONE STAND AND STOOL.

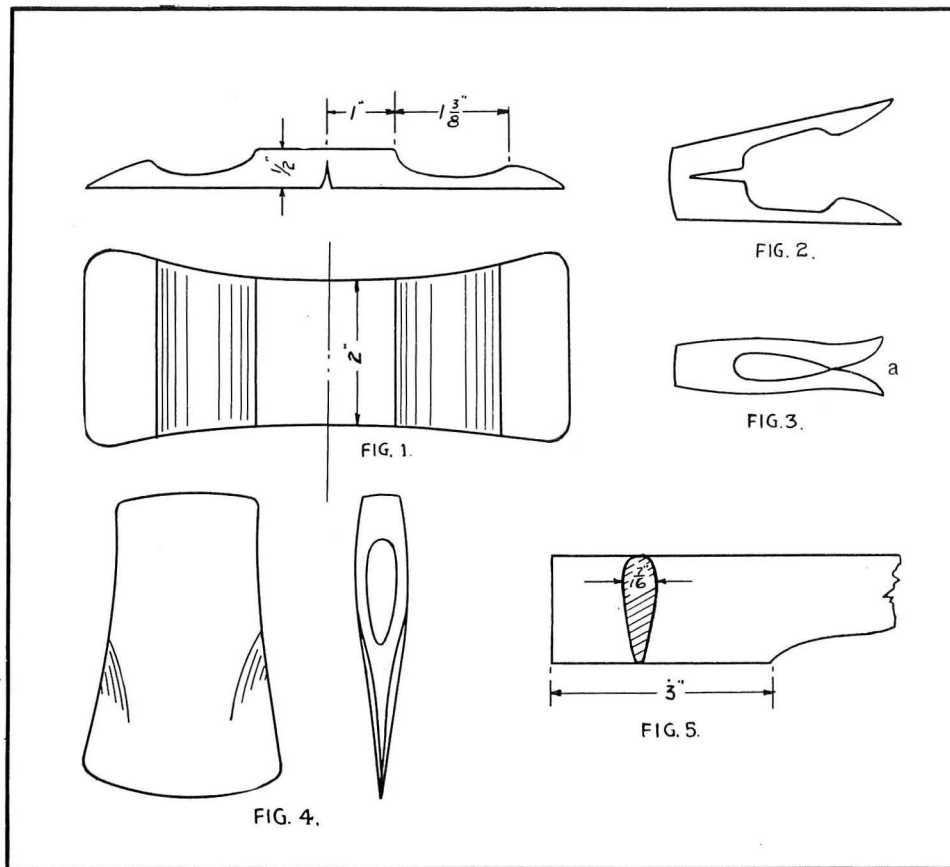
Edwin M. Sandvig, Cass Lake, Minn.

This project proved a success with the writer's freshman class in woodwork. It contains all the jointing and tool processes necessary in all larger pieces, and the cost of the finished project is easily within the means of any pupil.

The stool is attached to the stand by means of an arm. The stool can thereby be swung up underneath the stand and out of the way.

The stand top, as seen in the working drawing, is a frame construction, the center being a plate of glass held in place by the "holders" attached to the "backing." These holders swing into grooves or slots cut into the sides. Between the glass and "backing" a card may be inserted bearing





DETAILS OF MAKING AXE.

the names, telephone number, and street addresses of friends or business houses who are frequently called.

The top of the stand can be fastened down by means of screws thru the top and into the rails underneath. These screws are covered over by the rail on top.

The rails are all mortised and tenoned into the legs; the same construction is used for the top. The swinging arm is mortised and tenoned at each end into  $1\frac{1}{8}$ " squares which are in turn doweled into the bottom side rails of the stand and top side rails of the stool. The bottom back rail of the stool is placed in between the side rails instead of being mortised and tenoned into the legs. This is done to form a stop for the stool when swung up into the stand.

Oak is perhaps the most satisfactory material for this project.

#### MAKING A HUNTING AXE.

E. D. Soderstrom, Manual Training Department,  
Tulsa, Okla.

The making of a hunting axe is a problem that I think ought to be very interesting to the boys in the school shop and at the same time not too difficult for the boys of average ability. I have never seen it described in a school journal, so I take the liberty of describing my method, in the hope that it will help some reader who is looking for a problem that will "take well" with the boys.

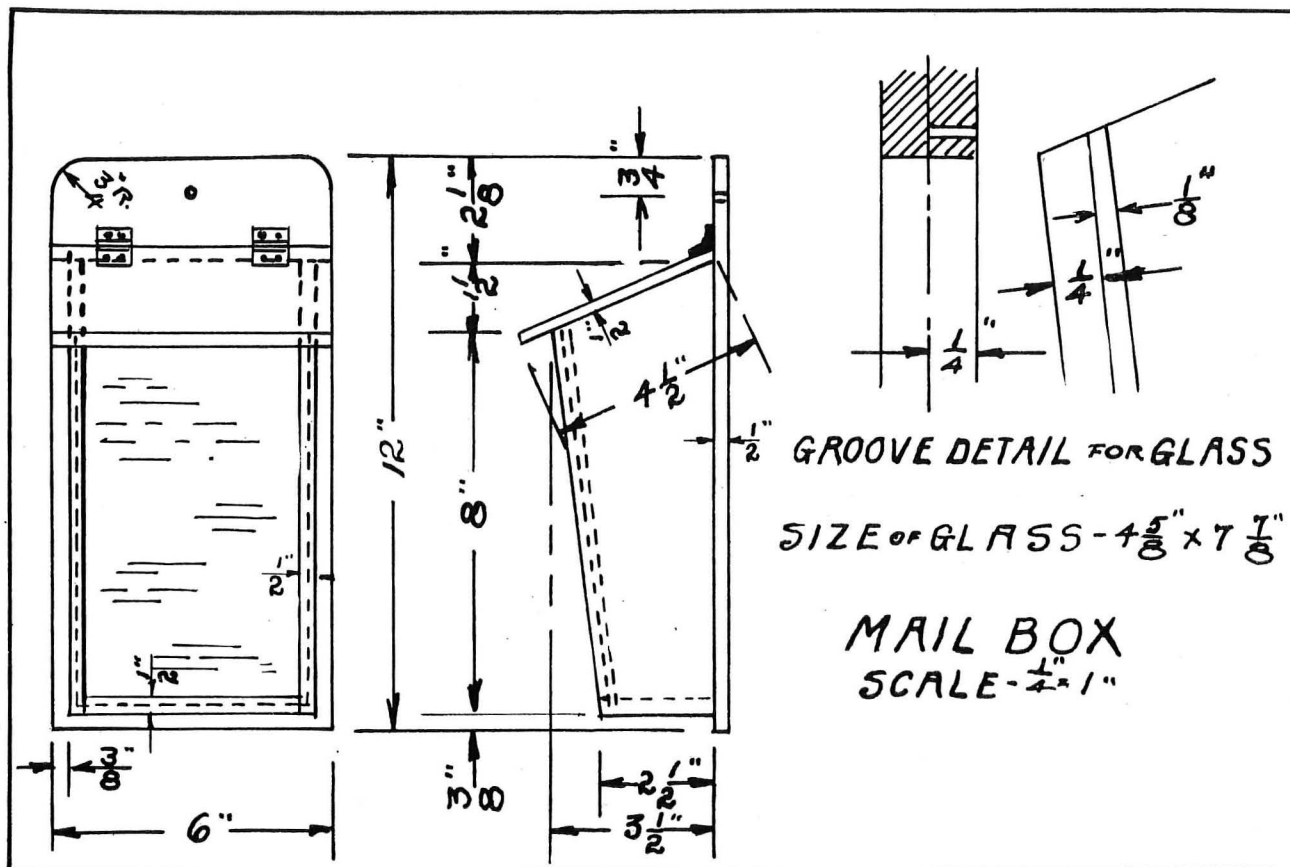
For the body of the axe use a piece of  $\frac{1}{2}$ "x2"x5 $\frac{1}{2}$ " soft steel. The first step is to shape it as shown in Fig. 1. The fullering should be started 1" from the middle and worked outward until the eye is formed. Now draw down the ends as shown and split almost thru from the back side; care should be taken that the cut or split is half way between the fullered portions and square across. Bend as shown in Fig. 2 and weld the head. The fire for welding must of course be deep and clean, and I have found that some welding compound such as "Crescent" or "E-Z" helps materially. The piece should now be shaped like Fig. 3 preparatory to welding in the steel. The steel should be  $\frac{3}{8}$ "x1 $\frac{1}{2}$ "x2 $\frac{1}{2}$ " scarfed to fit into (a), Fig. 3. Jessop's steel is very good for this, but I have used, with good results, a piece cut out of an old plow share, a piece from a large mill file, as well as a piece cut from the heavy portion of a leaf from a broken "Ford" spring.

When welding in the steel take the heats separately, use good welding compound, and drive the steel well into the opening before welding down the sides. It is necessary to work rapidly in order to secure a good weld. Draw out the edge to the shape wanted and finish up the eye and head. Anneal for about fifteen minutes in a slow fire, letting the heat gradually die down till all is black. In working the axe to shape it is necessary to insert a mandrel into the eye, the shape of which is the same as the finished eye. This mandrel, shown in Fig. 5, should be long enough to hold on to while



THE MAIL BOX.





working the axe down to shape. The axe is now ready for finishing by grinding and filing. To harden use a bath of linseed oil, after which the temper may be drawn slightly by the color method; that is, polish the sides of the axe, place the head in the fire and heat until temper colors begin to show, quenching the edge when a brownish purple has appeared.

#### MAIL BOX.

D. V. Ferguson, St. Paul, Minn.

The present design for a mail box was developed from a considerable number of mail boxes submitted to the author by instructors in the St. Paul schools. The problem of a mail receptacle was considered at the request of the local postmaster.

The box is made of one-half inch cypress to better withstand the weather. It has a single strength glass in front to permit the contents to be seen. As a problem for the seventh grade, the making of the box involves laying out, squaring stock, and numerous tool processes, including grooving with the back saw, planing to line, beveling, nailing butt joints and boring holes.

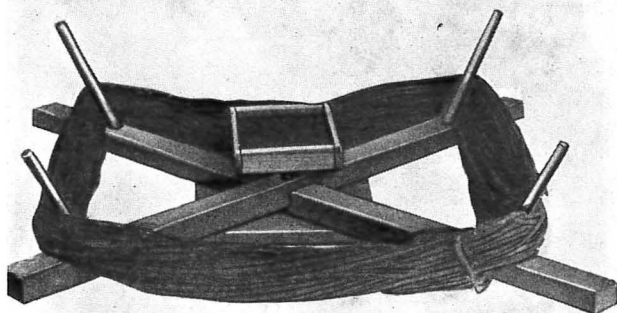
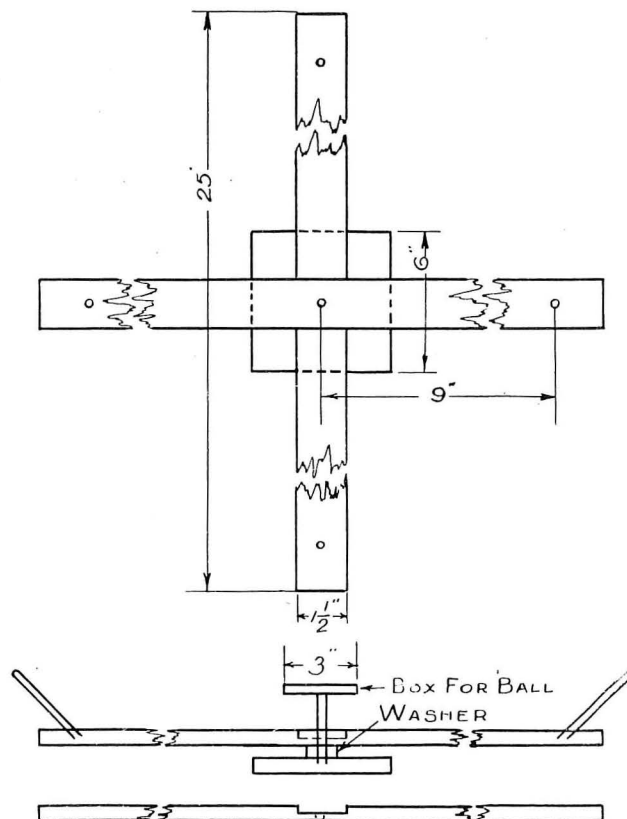
#### A YARN REEL.

Cora Warren.

The yarn reel illustrated in the accompanying photograph has been made and used successfully in the Normal

Training School at Vineland, N. J.

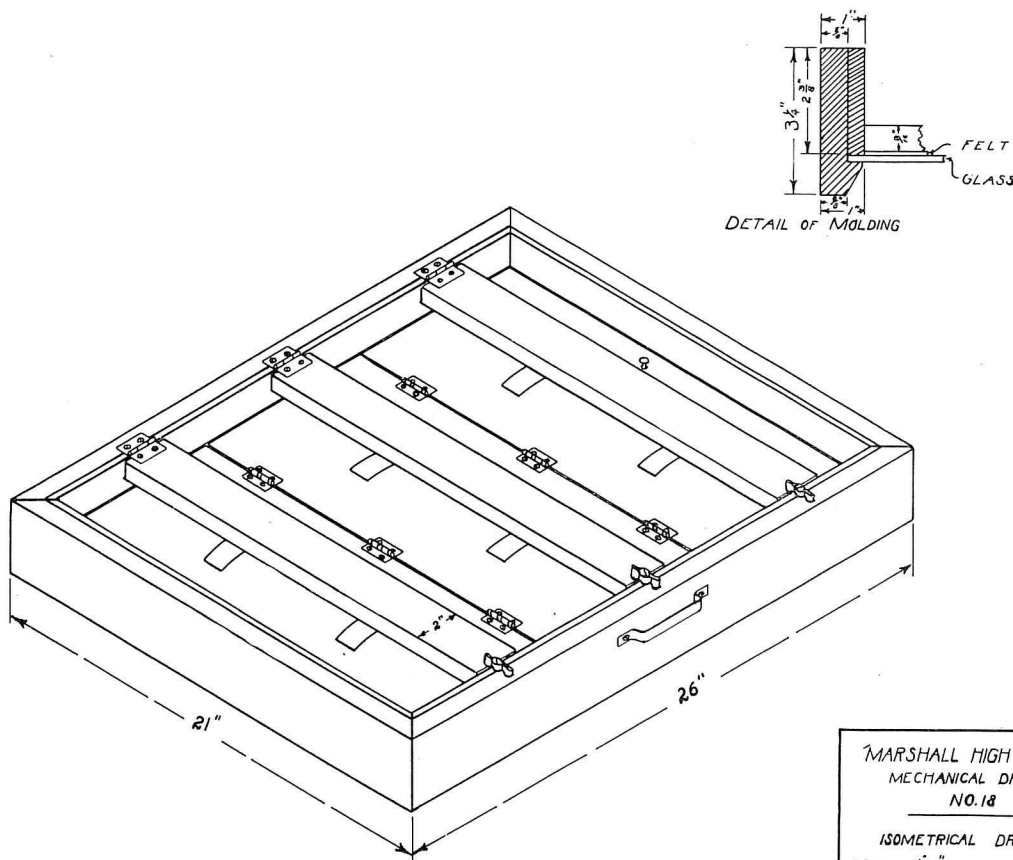
The arms, which are 25 inches long, have holes bored in them so that the pegs may be set to fit the length of the skein which is being unwound. A wooden tray is mounted in the center of the reel to hold the ball of yarn should the winding be interrupted.



Yarn Reel.

Details of Yarn Reel.

## BLUE PRINT FRAME



MARSHALL HIGH SCHOOL  
MECHANICAL DRAWING  
NO. 18

ISOMETRICAL DRAWING  
SCALE - 4" = 1"  
FEB. 1, 1918.

TRACED BY  
H. E. H. H. H.

DETAILS OF BLUE PRINT FRAME.

### A BLUE PRINT FRAME.

R. L. Wilson, Manual Training Instructor,  
Marshall, Ill.

The blue print frame illustrated in the accompanying drawing was made by the students of the Marshall Township High School. It is substantial and can be made at a very moderate cost.

If a shop has a circular saw, the molding for the sides can be made with ease. Otherwise it is only a slight expense to have it done at the mill. Ordinary window glass does very nicely for the exposure, altho double weight is better, mostly because it cannot be broken quite so easily.

The springs to hold the tracing and paper tightly against the glass can be made from spring steel or can be made very nicely from an old clock spring. The corners can be made with butt or miter joints, and can be strengthened with angle or corner irons. These can be countersunk on the inside, hiding them, and still furnish almost as much protection as if they were placed on the outside.

### VOCATIONAL EDUCATION IN JOHNSTOWN.

Arthur F. Payne, director of vocational work at Johnstown, Pa., has issued a brief review of the progress of vocational education during the past year.

In June, 1917, Johnstown was in the position of having very little direct relation between the work of the schools and the industries of the community. The first problem was to educate the board, the teachers and the public to the aim, purpose and method of vocational education. Accordingly the first year has been devoted to the conduct of a survey and to the work of organization. The problem has been rendered somewhat more difficult because of the war and the fact that Johnstown was endeavoring to place herself in line with other progressive cities.

The Junior High School has been reorganized for work in prevocational lines with new courses and a syllabus for every course given. A cafeteria has been successfully conducted by the students during the past year, while a vocational building has been erected by the boy students in record time. The co-operative industrial high school course has been entirely revised and placed on a practical basis with the help of the businessmen and manufacturers. A complete system of school and home gardening has been adopted and put into operation and a vocational evening school was organized and successfully conducted during the winter. A total of seventeen courses were offered to students in twenty classes. These classes represented a total of 332 different students with an attendance of 67.8 per cent.

A feature of the vocational work has been the classes for drafted men inaugurated upon the request of the Federal Government. Five courses were offered with 102 men in training. A broadening of the work for enlisted men was rendered impossible thru a total lack of buildings and equipment.

The continuation school system has been reorganized as also the method of issuing working papers to school children. The enrollment of the school has increased from 306 to 602 students in the space of one year and the number of working papers issued has reached 375.

A vocational school for boys has been established and has been in continuous session thruout the summer. The school offered work in seven trades and was organized according to the provisions of the Smith-Hughes Law. The boys produced work having a total valuation of \$4,808.67. This estimate is on a basis of two-thirds of the market price and was compiled with the aid of cost keeping and shop-order sheets on file in the shop.

The real work of the school began in September with the opening of the new school year. A department of vocational guidance has been placed in operation which aims to keep in touch with pupils and to supply vocational information to those who withdraw from school.

A number of innovations remain to be organized and placed in operation. Among these are the household arts department, the high school technical course, the industrial buildings for the grade schools, the establishment of a home making practice house and the erection of a vocational and technical school of the established factory type with provision for all forms of mechanical operations and open to any boy over 14 years of age.

#### INDUSTRIAL ARTS DURING THE WAR.

In a statement on the modifications necessary in American education during the period of the war, the U. S. Bureau of Education urges attention to the industrial arts particularly, as these may be useful in training young men for military duty. The statement, which is signed by a committee headed by W. T. Bawden, reads in part as follows:

E. Electrical.....	Electric wiring.	Electricians. Telephone repairmen. Radio operators.
F. Building.....	General wood-working.	Carpenters. Bench woodworkers. Cabinetmakers. Cement and concrete workers.
G. Drafting.....	Elementary mechanical and freehand drawing.	Machine draftsmen. Architectural draftsmen.

In this war emergency the schools are asked to give special attention to the training of automobile mechanics, since a very large proportion of the mechanical help now needed in the field is in this line.

#### Recommendations

(1) The high schools of the country should undertake this work immediately. The type of training which fits the boy to be of most value in war-emergency work furnishes him



POSTERS MADE IN GRADES, MILWAUKEE SCHOOLS,  
MISS EMILY DORN, SUPERVISOR OF ART.

The present needs of the Army and Navy for trained mechanics, and the needs of the industries behind the Army and Navy, make it imperative that high schools help in the special training of young men who are approaching military age. The war department has sent out an urgent call for men trained in a number of mechanical trades and occupations, which, for convenience, may be grouped as follows:

#### Industrial Arts General Statement.

Group.	Foundation Work.	Trade Specialization.
A. Automobile....	Bench work and study of gas-engine machinery.	Gas-engine repairmen. Automobile mechanics. Tractor operators. Motorcycle repairmen.
B. Machine work	Bench and machine work.	Machinists.
C. Metal work...	Elementary sheetmetal work.	Sheetmetal workers. Pipe fitters. Plumbers.
D. Forging.....	Elementary forging.	Blacksmiths. Wheelwrights. Horseshoers. Gas welders.

with an excellent foundation for work in industry after the war.

(2) Boards of education should make such additions to the curricula of the schools as will enable them to offer training preparatory to some of the occupations listed above. Boys who are not taking college-preparatory courses may well substitute shopwork for some of the academic subjects.

(3) Wherever practicable, co-operative shopwork (part-time division between schooling and employment) should be introduced under the direct supervision of the public school authorities.

(4) Immediate consideration should be given to lengthening the daily, weekly, and annual school sessions.

(5) Wherever practicable a number of elective two-year vocational courses should be offered, with the following divisions of time:

Fifteen hours (60 minutes each) per week in shopwork.

Fifteen hours (60 minutes each) per week in related subjects, which may include English, mathematics, free-hand drawing, mechanical drawing, science, industrial history, citizenship, physical training.

(6) For the war-training work in the general high school the minimum amount of time should be 10 hours (60 minutes



each) per week, for a period of three years. This work should include: (a) shopwork; (b) drawing; (c) related sciences.

(7) Those schools which have no equipment for teaching vocational subjects, but which do have available space, should use this space for shop purposes. In other cases rooms outside the school building should be rented, or a temporary building should be erected for such purposes.

(8) From 4 to 10 periods (40 to 45 minutes each) per week in the seventh and eighth grades should be devoted to handwork, with the emphasis upon practical shopwork in wood and metal preparatory to the work suggested for the high school.

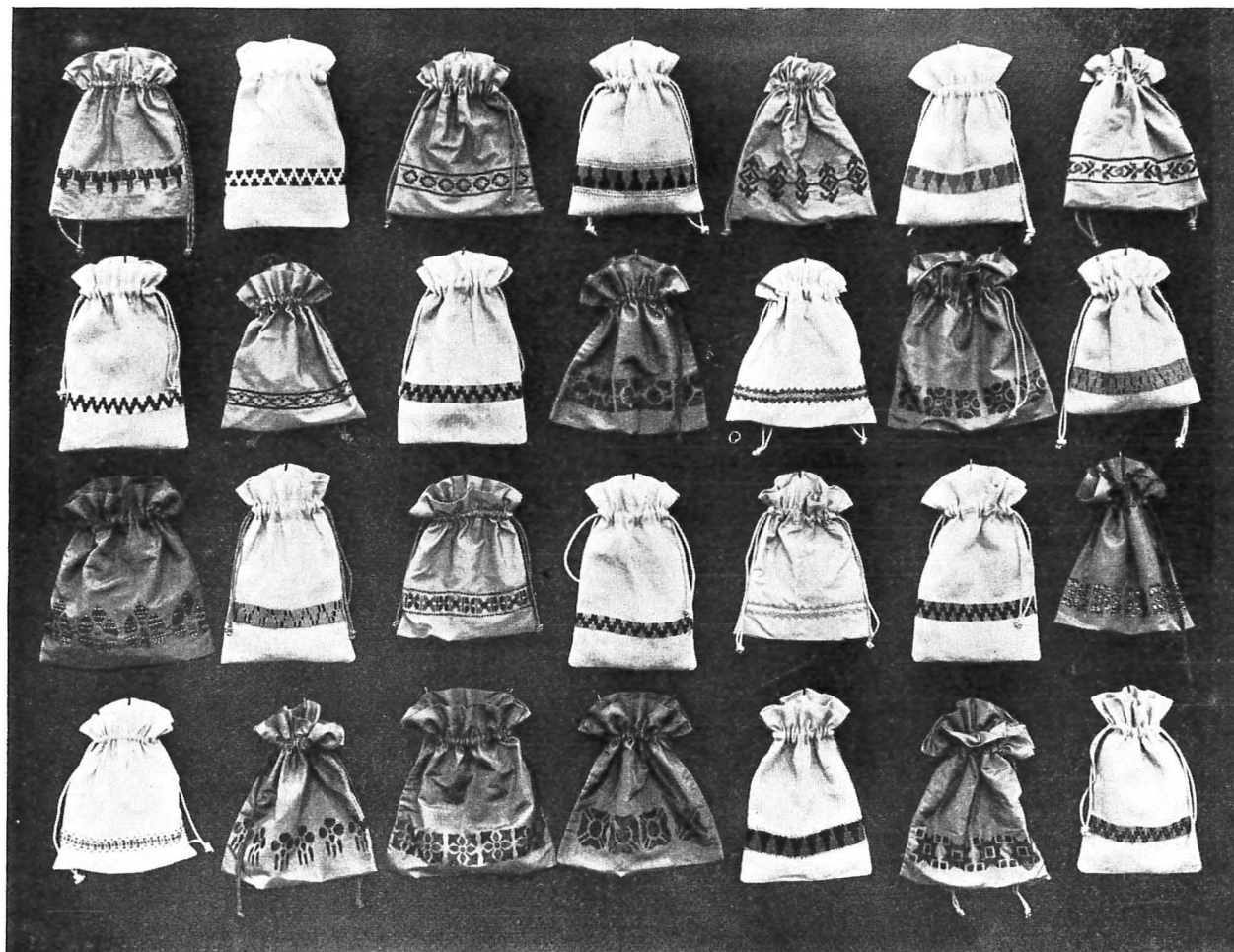
(9) Consolidated and rural schools of elementary grade should be encouraged to undertake such handwork as conditions may permit, with the thought of developing skill and resourcefulness.

information on the number of employees, the character of work, the number between the ages of 16 and 25, etc.

Suggestions concerning instruction, the possible employment of a foreman as instructor and the use of a part of the factory for class use were asked. As a result of this inquiry a considerable number of employers distributed information concerning night courses and secured enrollments. The schools provided for the latter purpose a card which carried a strong argument for vocational training. The following appeared on the cards:

The management of this firm is co-operating with the Vincennes School Board in offering *special courses of training* to increase the skill and knowledge of our employees in their daily work. Information as requested on this card is necessary to establish classes meeting the needs of our people.

Some of our employees have from time to time taken cor-



BAGS DESIGNED AND WOVEN IN THE SEVENTH GRADE, JOLIET, ILL., SCHOOLS. MISS LAURA AVERY, SUPERVISOR OF ART.

#### The Teacher Problem.

(10) Boards of education should exercise care in the selection of shop teachers. A teacher to be successful should have a practical knowledge of the shopwork to be taught and experience in handling boys. It is sometimes practicable to use the services of a skilled tradesman for part-time teaching.

(11) It should be clearly recognized that the demand by the Army and Navy and by essential war industries for workers in technical and industrial fields is so urgent that teachers of these branches may render their country the maximum measure of patriotic service by remaining in the teaching work.

#### INCREASING EVENING SCHOOL ATTENDANCE.

Attendance in the evening vocational schools of Vincennes, Ind., has been increased immensely thru a systematic campaign carried on by Mr. J. I. Sowers, director of vocational education.

During July and August, Mr. Sowers took an industrial census of the community thru the owners of factories and stores. The respective establishments were asked to supply

response courses to better fit them for advancement,—this is commendable. We desire now however to provide free instruction along any line that will develop our employees into *greater efficiency*, putting them in line for *promotion and advancement*. Some of these courses will be given during the day in part-time classes, but for the most part instruction will be given in evening classes.

Name..... Address.....  
Age..... Phone number.....  
Place of employment.....  
Kind of work you are now doing.....  
Do you desire training of any kind?..... What course of training do you desire?.....

The federal government has made available to Vincennes a sum of money to pay in part for giving such courses in trade education as are needed by the people of our city. These courses are free and are open to anyone of either sex over sixteen years of age. Courses chosen must however be such as directly relate to the daily occupation.

# NOW, ARE THERE ANY QUESTIONS?

This department is intended for the convenience of subscribers who may have problems which trouble them. The editors will reply to questions, which they feel they can answer, and to other questions they will obtain replies from persons who are competent to answer. Letters must invariably be signed with full name of inquirer. All questions are numbered in the order of their receipt. If an answer is desired by mail, a stamped envelope should be enclosed. The privilege of printing any question and reply is reserved. Address, Industrial-Arts Magazine, Milwaukee, Wis.

## Vocational Rehabilitation of Disabled Soldiers.

844. Q.—I note in your July number the following publications: Vocational Rehabilitation of Disabled Soldiers and Sailors and Governmental Provisions for Members of the Military Forces and Their Dependents. Where may these be secured?—G. W. M.

A.—The publications may be had by addressing the Superintendent of Documents, Government Printing Office, Washington, D. C. The price is 25 cents. A later and valuable publication is "The Evolution of National Systems of Vocational Re-education for Disabled Soldiers and Sailors," by Douglas C. McMurtrie. It may be had free from the Federal Board for Vocational Education, Washington. It contains a complete bibliography.

## Broom-making.

830. Q.—We live in a section of the country where broom corn can be grown. It strikes me that it would be a good plan to have boys learn to make their own brooms.

Will you kindly advise me as to tools or machines required to do this work? Also as to whether there would likely be very much difficulty in learning to make brooms? Do you know of a good text on the subject?—F. L.

A.—There is very little printed information available on the art of broom-making. The processes of making brooms are simple and apparently have not been considered worthy of discussion, even in books on handicrafts for the handicapped. If you introduce broom-making in your schools you will be a pioneer and it will be necessary for you to develop your own teaching methods. It is our suggestion that you get in touch with some practical hand-broom-maker in your own community, or in some neighboring city, and that you learn the craft by direct observation.

Tools and machines for hand-broom-making are sold by the following firms:

W. L. Roseboom & Co., 3544 S. Morgan St., Chicago, Ill.; Boggs Broom Corn Co., St. Louis, Mo.; J. A. Hockett & Co., Main and West 11th Sts., Cleveland, Ohio; C. D. Dickenson & Son, North Hadley, Mass. The last mentioned firm has manufactured knives, scrapers, needles and other tools for hand-broom-making since 1840.

The two best books on brooms and broom-making are: *Broom Corn Culture* by A. G. McCall, published by the Orange Judd Co., 315 Fourth Ave., New York City; and *Broom Corn and Brooms*, written by several editors of the American Agriculturist, published by the Orange Judd Co., New York City.

The United States Department of Agriculture has two good bulletins on "Broom Corn and Broom Corn Culture," but they contain nothing about the practical making of brooms.

## Clay and Cement Modeling.

849. Q.—Can you recommend me books of instruction on clay and cement work?—F. T.

A.—Clay work or pottery is rather an interesting art, but to be practiced successfully in its advanced forms requires considerable equipment. The simpler work which leads to plaster casting can be undertaken by anyone who is at all "handy" and has some sense of line and form.

One of the simplest books on the subject is *Paul Hasluck's Clay Modeling and Plaster Casting*, \$0.50, Funk & Wagnalls, New York City. Two good books on pottery work are: *Binns's Potters' Craft*, \$2.00, Munn & Company, New York City; and *Cox's Pottery*, Macmillan Company, New York City.

Cement work is a good deal easier than pottery and can be undertaken by anyone. A good elementary book is *Campbell and Bayer's Practical Concrete Work*, \$1.50, published by the authors, 824 North Ridgeland Ave., Oak Park, Ill. Other good books are: *Fallon's How to Make Concrete Garden Furniture and Accessories*, \$1.50, McBride & Company, New York City; *Wheatley's Ornamental Cement Work*, \$2.00,

D. Van Nostrand Company, New York City; *Davison's Concrete Pottery and Garden Furniture*, \$1.50, Munn & Company, New York City; *Houghton's Ornamental Concrete With-out Molds*, \$2.00, Munn & Company, New York City; *Houghton's Concrete from Sand Molds*, \$2.00, N. W. Henley Company, New York City.

## War Work Information.

853. Q.—Who can I get in correspondence with concerning articles which my manual training class can make for Y. M. C. A. huts, etc.?—C. E. S.

A.—Concerning articles for the Red Cross write to the Bureau of Camp Service, Washington, D. C., or to Miss Justine R. Cook, general supervisor of Red Cross House Furnishings, Washington, D. C., or to Mr. J. N. Rule, Schenley High School, Pittsburgh, Pa. Concerning Y. M. C. A. furnishings address Dr. William T. Bawden, United States Bureau of Education, Washington, D. C.

## NEWS NOTES FROM THE FIELD.

*Columbus, O.* Part-time industrial training has been introduced in the Trade School for Boys and Girls employed in stores, offices and industrial shops. Under the new plan boys and girls between 15 and 18 years will spend alternate weeks at school and work. Instruction in the trade school will consist of specific theory and practice, mechanical drawing, mathematics, pattern-making, electricity, cabinet making, architectural drawing, and high school subjects.

*Supervisor of Vocational Work Arthur F. Payne*, in an interesting report to the board of education at Johnstown, Pa., has recommended the establishment of a vocational-technical school as a war-time measure. He suggests that this building be of the concrete factory type of construction, with two stories devoted to such special departments as electricity, machine shop practice, foundry and forge work, sheetmetal and plumbing, wood-working, drawing, industrial chemistry, science and also laboratories and offices. Any boy 14 years of age who is up to the standard of physical and mental efficiency would be eligible to the school.

*The Southern Conference on Trade and Industrial Education*, held during August at Tuscaloosa, Ala., was attended by distinguished educators from all the southern states. The conference was called by the Federal Board of Vocational Education to discuss ways and means for the South to realize its opportunity and participate in the funds of the Smith-Hughes law.

Dr. Lewis H. Carris, of the Federal Board, who presided at the opening session, declared that the conference owed its inception to the initiative of the university, which was anxious to have the Southern states take full advantage of the law. Roy Dimmitt, federal board agent, explained the difference between vocational education and manual training. State Supt. Spright Dowell, who presided at the afternoon session, led the discussions on part-time classes, requirements of the federal board, types of instruction, status in the southern states.

A conference of southern cotton mill men of Georgia was held at Atlanta during the month of August to discuss the establishment of a vocational school for textile workers. The federal board has been asked to undertake a special study of the problem of training textile workers to meet the needs of these workers and also the industry in which they are employed. It is planned to conduct a similar conference of other industrial employers of the south during the annual meeting of the Southern Commercial Congress at Baltimore, in December. At this meeting, a section is to be devoted to trade and industrial education for the south and leading business men will be asked for information based on their experience.

A new vocational guidance system just adopted for the schools of Newark, N. J., provides that one teacher shall be especially assigned to each school to act as vocational counsellor. The guides will represent the schools in vocational conferences as well as working in the individual schools. It is planned to issue a series of occupational leaflets for the use of the teachers. These leaflets will treat of some one industry and will analyze the whole organization from top to bottom. Lists of occupations and opportunities of each will be given.



# Again!

**WE** ARE asked to BUY LIBERTY BONDS. It's an honor to lend our money to Uncle Sam. The glorious news which comes from France, telling of how our troops, and those of our Allies, have beaten back the army of invaders who have cursed every foot of ground over which they have trod, may well give heart to the nation, and to all civilization. OUR LIBERTY BONDS HELPED.

The war cannot be won without the essential equipment of a modern successful army. Those who are fighting for us are not limited to hours, Sundays, or holidays, constantly, day and night they face poisoned gas, shot, shells, bombs, blindness, mental and physical torture; cold, rain, snow, hunger, unbearable suffering, mud, vermin, disease, death and general hell.

*It's up to us to*

*"Ain't it Hell:  
Those Fellows  
at home have  
to put up all  
the money"*



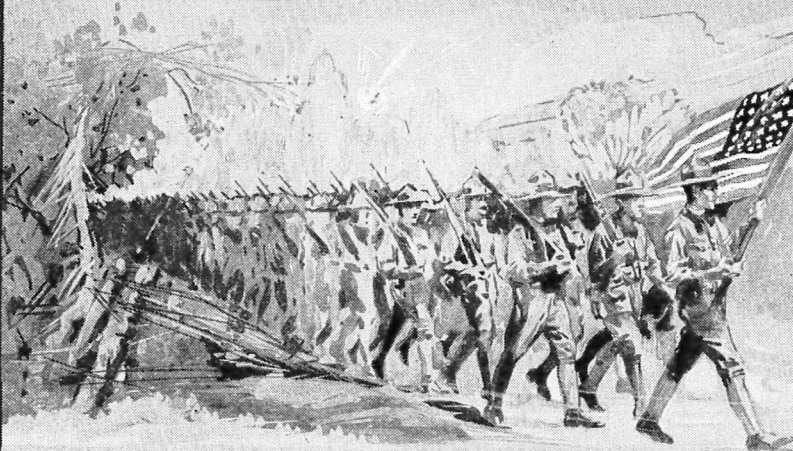
*Courtesy Gear Williams*

# BUY Liberty Bonds

and we should not feel satisfied unless each and every day we have done everything we possibly could do to Win this War. The more bonds we buy, the sooner our boys will finish their work, and come back home.

Let their be no peace, until the Huns pay full price.

**"On to Berlin"**



Keep the home fires  
burning,  
While your hearts are  
yearning.  
Though your lads are  
far away  
They dream of home;  
There's a silver lining  
Through the dark cloud  
shining.  
Turn the dark cloud  
inside out,  
Till the boys come home.

*This space contributed for the Winning of the War by*

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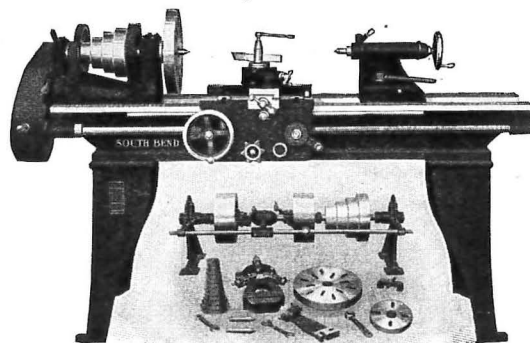
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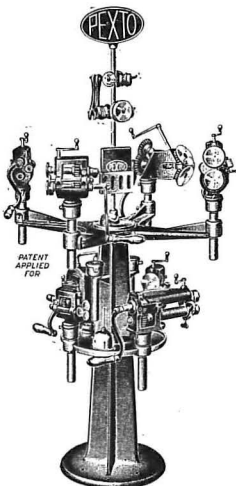
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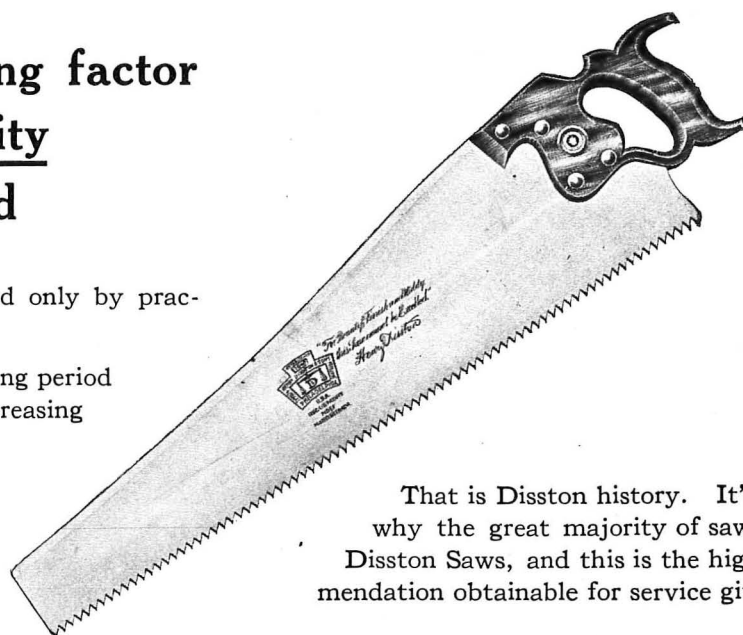
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### NEW BOOKS AND PAMPHLETS.

#### Elementary Lathe Practice.

By T. J. Palmateer. 29 pages. Published by the author at Stanford University, Stanford, Cal.

#### Elementary Machine Shop Practice.

By T. J. Palmateer. 57 pages. \$0.75 per set. Published by the author at Stanford University, Stanford, Cal.

The first book is intended to help beginners acquire familiarity with the more common lathe operations in the shortest possible period of time. For this reason the exercises give the student the maximum amount of information in a very short time and the repetition of operations has been avoided wherever advisable. It is assumed that beginners will receive oral instructions on the operation of the lathe and that the instructor will give practical demonstrations of most of the operations.

The pamphlet discusses centering, placing work in lathe, turning the shaft, thread-cutting, grinding, adjusting speed, rough turning and boring, inside finishing, drilling and reaming, outside finishing, and knurling.

The second book represents the experience of the author after ten years' use of the exercises described. The material makes it possible for the instructor to handle a large number of students efficiently and without confusion. All exercises are given to good and poor students alike, so that the work is absolutely fair to all. The designs are such that the student gains a great deal of information and occupies little time in performing the work, at the same time acquiring skill as his knowledge of the different operations increases. It has been found that the written instructions can be given in a clearer way than when issued orally and the instructor can give his attention to other work.

The books will be found of value in manual training shops where large numbers of pupils are accommodated and where the time is somewhat limited. The instructions help the student to develop his power of thought and initiative and also relieve the instructor of a great deal of unnecessary labor in the way of explanations.

#### A Practical Course in Wooden Boat and Ship Building.

By Richard M. Van Gaasbeek. Cloth, 204 pages; illustrated. List price, \$1.50. Frederick J. Drake and Company, Chicago.

This book is one of the first fruits—in the form of a text—of the extensive trade instruction which has been made necessary by the war. It has been developed from the pioneer courses

in ship building offered at Pratt Institute to men in the Brooklyn ship building yards. The first four chapters are devoted to a complete description of the processes of boat building from the preliminary laying out on the mould loft floor to the final calking and finishing.

The development of topics is logical and follows the steps in the best present day practice of the government ship building yards. The author has chosen a small standard boat as a means of developing principles and methods which are universal in their application to boats and standard wood ships. He has done this because of the necessary economy in space, materials and time, and has most successfully differentiated between the essential and the non-essential operations that the apprentice and the experienced cabinet maker or carpenter who is going into ship building will want to learn.

The second half of the book is devoted to a rather popular description of ship construction as practiced in the yards under the control of the United States Shipping Board. The purpose is to give the workmen a grasp of the general methods employed in the yards and of the specific processes in handling and fastening heavy timbers. The book is fully illustrated with working drawings, tables and photographs of processes and ship parts. A splendid ship-building terminology is added so that the novice may have an exact technical definition of every new term and phrase which he meets.

The book will be found valuable, we think, not only in classes where ship builders are being trained for the present emergency, but also for general use in continuation and trade schools where ship building is likely to be a local industry.

#### Essentials of Sheetmetal Work and Pattern Drafting.

By James S. Daugherty. Cloth, 181 pages, illustrated. Frederick J. Drake and Company, Chicago.

This practical textbook is the result of many years of pioneering as a teacher of apprentices and of practical sheetmetal workers. It presents a very complete course in sheetmetal or tin-smithing from the simplest hand tool processes to the most complicated machine operations and the most difficult mathematical calculations. The author has a splendid grasp on the difficulties of the average apprentice and he emphasizes many points more strongly than the average academic textbook would do. His text gains thereby in clearness and completeness.

The problem method is employed and every principle and process is illustrated by means of a useful article which the

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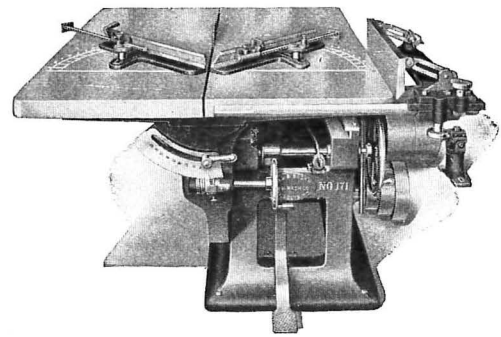
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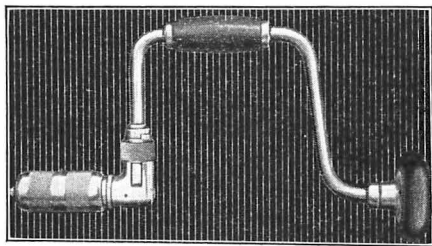
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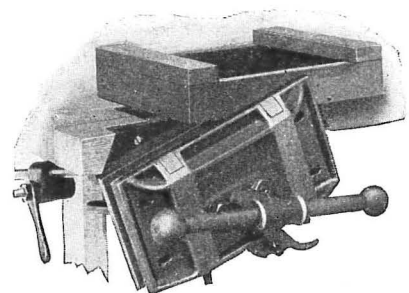
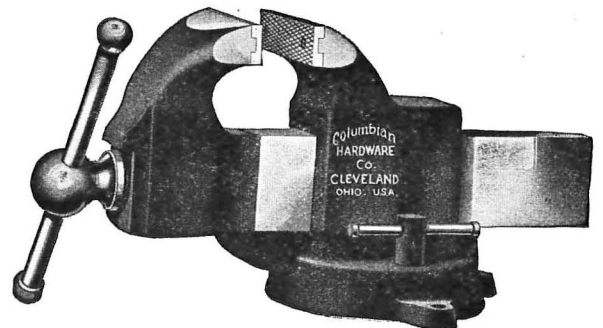
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(Concluded from Page XIX)

student should make. Fundamentals are sufficiently reported and referred to in the progressive problems so as to afford a corresponding growth in skill with a quick familiarity of the more difficult work. The sections devoted to sheetmetal drafting are very complete; the mathematics of the work are adequately handled. All in all the book is to be highly recommended.

#### Tom Brown's School Days.

By Thomas Hughes. Edited by H. C. Bradley. Cloth, 12 mo., 442 pages. Price, 80 cents. Ginn and Company, Boston.

Two features of this charming boy classic stand out: The illustrations were made by a noted English artist, Hugh Thomson, who visited Rugby and prepared the drawings on the actual scenes of the story. The local allusions and the slang of the day are explained by a Rugbians of today.

#### Camp Cookery.

By Professors A. B. Milan, A. Grace Johnson, and Ruth M. Smith, of the Oregon Agricultural College. Boards, 108 pages. J. K. Gill Co., Portland, Ore.

This handbook has been prepared for boy scouts and other campers, by three teachers who have wide experience in camp cookery. The book is wholly practical and outlines not only meal plans and recipes but contains a wealth of information on the selection of food supplies, camp equipment and camp methods. Two most valuable chapters are devoted to camp diets from the health standpoint and a complete outline for teaching camp cookery.

#### Handbook of Recipes.

By Faith R. Lanman. Paper, octavo, 128 pages. Fifth edition. Published by the author at Columbus, Ohio.

The best evidence of the value of this book is the fact that it has passed thru four editions and that thousands of girls in Columbus who have studied it in school, use it in their homes.

#### Aeroplane Construction and Assembly.

By J. T. King and N. W. Leslie. Cloth, 116 pages; illustrated. The William Hood Dunwoody Industrial Institute, Minneapolis, Minn.

This manual has been prepared especially for aeroplane mechanics who are undergoing the course of instruction at the aviation camps and the special military technical schools. It embraces the complete details of aeroplane assembly, construction, materials and theory of flight. The authors are both experienced teachers—the second has seen service in the British flying corps—and they write with that certainty that comes from accurate knowledge of their subject and of the shortcomings of their students. The style of the book is extremely informal and condensed but the language is always exact, clear and simple.

#### PUBLICATIONS.

*Course of Study of Stuttgart Vocational High School, Stuttgart, Ark.*

*The Liberty Book.* Published by the International Harvester Co., Harvester Building, Chicago, Ill. A helpful book on the teaching of agriculture in the schools.

*Carry On.* A magazine on the Reconstruction of Disabled Soldiers and Sailors. Published in the office of the Surgeon General of the U. S. Army, Washington, D. C. The magazine shows in a conclusive manner the value of some of the classes which are conducted in the army hospitals, especially in sign painting, telegraphy, mechanical drawing, chemistry, motor mechanics and agriculture.

*Annual Report of the Sub-Department of Technical Education, Province of Nova Scotia.* By Frederic H. Sexton, director. Contains a review of the work accomplished by the vocational classes and by the department for the vocational training of disabled soldiers.

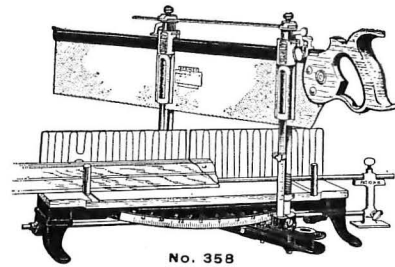
*Agricultural Instruction in the High Schools of Six Eastern States.* By C. H. Lane. Bulletin No. 3, 1918, U. S. Bureau of Education, Washington, D. C. This report is the result of a co-operative agreement between the Bureau of Education and the States Relations Service of the Department of Agriculture and the study was begun to determine the character of instruction in agriculture in certain high schools in the eastern states and the methods of administration.

*Rehabilitation of the War Cripple.* Douglas C. McMurtrie. Red Cross Institute for Crippled and Disabled Men, 311 Fourth Ave., New York City.

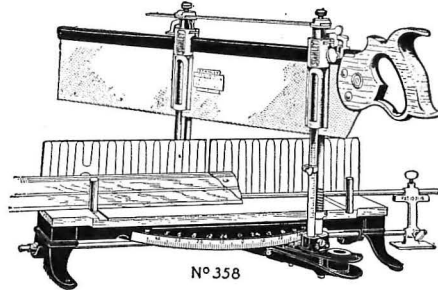
*Organization, Work and Method of the Red Cross Institute for Crippled and Disabled Men.* Douglas C. McMurtrie.

*The Glass Industry as Affected by the War.* Tariff Information Series No. 5, United States Tariff Commission, Washington, D. C. The pamphlet discusses new branches of the industry, changes in manufacture and trade due to the war, and export and domestic trade after the war.

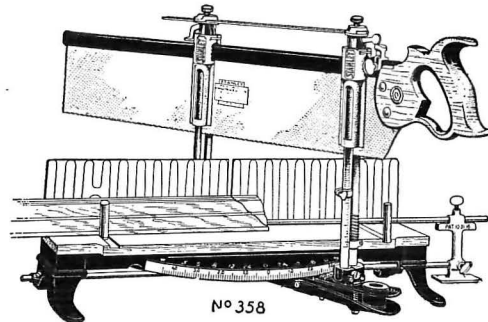
# Stanley Tools



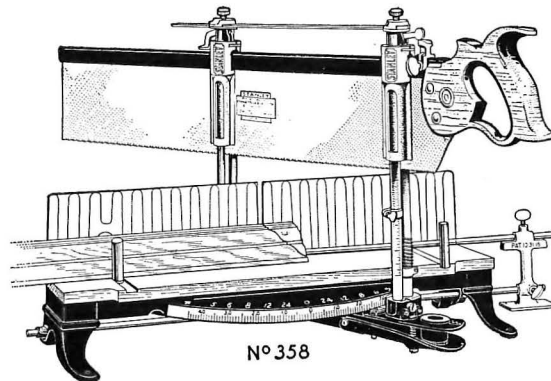
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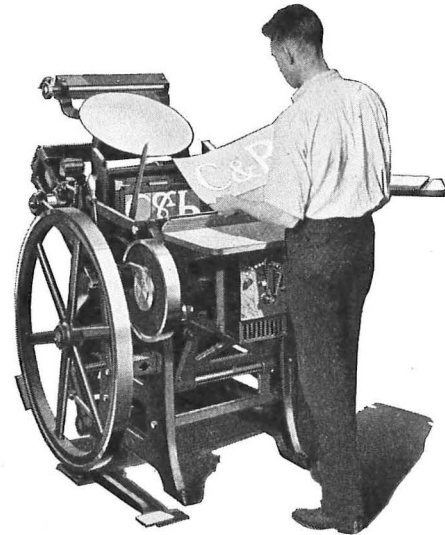
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#### NEWS AND NOTES.

*A training school for women workers in the machine shop has been opened at the Westinghouse Electric & Mfg. Co., East Pittsburgh, Pa., under the direction of O. F. Schendel. The instruction includes the fundamental principles of operating machines and bench work.*

*Erie, Pa.* A four-year industrial course has been opened at the Central High School. Instruction is given in pattern making, tool making and machine work and practical training is offered at a number of industrial plants.

*An evening vocational school* has been established at the high school in Marion, Ind. The course is open to young men and women employed in factories, stores and offices who desire to extend their education.

*The board of education at Minneapolis, Minn.,* has extended its system of night schools to meet the increased demand for skilled war workers.

*Supt. Alexander Sherriffs, of San Jose, Cal.,* has recommended that vocational training in automobile construction and repair be included in the course of study this year.

*Grand Junction, Colo.* A course in agriculture has been made a part of the second-year high school work.

*Co-operative vocational work* will be offered in the schools of Lima, O., this year.

*Holyoke, Colo.* The board has purchased a frame workshop and remodeled it for the use of the manual training department. The entire department is to be reorganized and brought up to the standard for government aid.

*The Boys' Trade School at Worcester, Mass.,* has undertaken the training of workers in machine work to take the places of men in the government service. The instruction covers gas engine work, electrical construction and repair, pattern making, cabinet making. Classes in drafting and tracing, and gas engine work have been opened for the benefit of women students. The school is under the direction of Mr. John P. Casey.

*At a recent gathering of Red Cross workers, manufacturers and others in Boston,* moving pictures were utilized to show what England and France have done for disabled soldiers. The pictures were shown by Dr. Douglas C. McMurtrie, who told what

these countries have done to make their soldiers one hundred per cent efficient in civil life. The first school was opened in Lyons, France, in 1914, and Dr. McMurtrie had the opportunity of meeting the first three graduates.

*The largest and most complete vocational high school* has been established in connection with Teachers' College, Cedar Falls, Ia. In addition to vocational training on an intensive scale, it provides for dressmaking, millinery, allied arts, domestic science, Spanish and French.

*The University of Pennsylvania* has been named by the Federal Board of Vocational Education as one of the three teacher-training schools for the trades and industries. The industrial school of Philadelphia and the continuation and household arts classes will be beneficiaries under the vocational fund.

*War training classes* were conducted in sixteen cities of the Keystone State during the past summer. Instruction covered six army occupations including radio and buzzer work, automobile repair, machine shop practice, blacksmithing and carpentry. The honor roll includes Allentown, Bloomsburg, Butler, Easton, Erie, Harrisburg, Hazleton, Johnstown, Philadelphia, Pittsburgh, Reading, Scranton, Shamokin, West Chester, Wilkes-barre and Williamsport.

The classes were established under the direction of W. P. Loomis, supervisor of industrial education for Pennsylvania, and the work was conducted under the supervision of the Federal Board of Vocational Education and the State Bureau of Industrial Education in co-operation with the War Department.

*The Moosheart Vocational Educational Institute, at Moosheart, Ill.,* issues a weekly news sheet devoted to the activities of the school. The paper is edited by the editorial staff of the school and is printed by the students of the printing classes.

*The Federal Board of Vocational Education* has made a number of special appointments in connection with the work of directing vocational education for the states and the federal government. Mr. K. G. Smith has been appointed special agent for industrial education in Indiana to succeed R. J. Leonard. Roy S. MacElwee was appointed special agent for commercial education in the Division of Commercial Education at Washington. Mr. H. L. Brunson has been appointed placement officer in the vocational office of the Smith-Sears Division. Dr. J. C. Miller, of Canada, has been appointed supervisor of establishment and

(Continued on Page XXV)

# Bruce's Book Bulletin

Check the following "Bruce Books" and if you have not had the opportunity to examine them, remember we will gladly send subscribers in good standing any book on "10 days' approval." Merely check the coupon, sign and return, and the books will be sent you without delay.

## Problems in Woodwork

### *In Combination with Other Materials*

By EDWARD F. WORST,

*Supervisor of Elementary Manual Training, Chicago.*

### A Book for the Upper Grades and Junior High Schools.

This book presents a complete collection of problems for the three upper grades of the elementary school or for the junior high school. It forms the basic text for the upper-grade manual training courses in the Chicago schools where it has been used during the past year.

The author has given full expression in every problem to his wonderful versatility as a master teacher, workman, and designer. He has brought to bear many years of experience as a teacher and supervisor of manual arts, as a student and worker in wood, metal, splint, cane, rush, reed, and textiles, and as a designer of useful and artistic articles for the home and school. Every problem is new and novel and has been tested for practical utility, industrial and educational value, simplicity and economy and artistic merit.

The instructor who is looking for *new* problems, will find the work a most refreshing source of directly usable material and inspiring suggestions.

The book contains over 200 problems in nine chapters.

Cloth, 242 pages.

Price, \$2.00, net.

## Manual Training for Rural Schools

By LOUIS M. ROEHL,

*Supervisor of Farm Shop Work, New York State College of Agriculture, Cornell University.*

This book has been developed as the result of teaching in country schools with a limited equipment and funds. It is planned to be used as a text by the pupils and is so clearly written and so well illustrated that any inexperienced teacher may use it. Lists of equipment, tools and complete stock bills are included. The problems are carefully graded to illustrate all of the fundamental tool processes and to provide for the pupil interesting and helpful objects which he may use on the farm and in the farm home. Fully illustrated.

Paper, 48 pages.

Price, 35 cents, net.

## Practical Forging and Art Smithing

By THOMAS F. GOOERTY.

The first half of this introductory text is a practical treatment of the elements of forging in the shape of carefully graded problems and exercises. The fundamental processes and theories are carefully interwoven and the student is fully familiarized with tools and appliances of the craft.

A series of artistic projects, graded for utility and sequence in difficulty of operations, constitutes the second part. The author is a master craftsman and teacher of wide experience. Fully illustrated.

Cloth, 144 pages.

Price, \$1.00, net.

## In Preparation

### Foot-Power Loom Weaving

By EDWARD F. WORST.

A complete manual of weaving for teachers and craftsmen. Write for announcement.

## Agricultural Woodworking

By LOUIS M. ROEHL,

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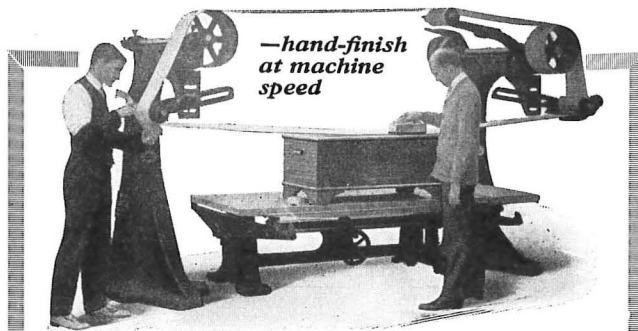
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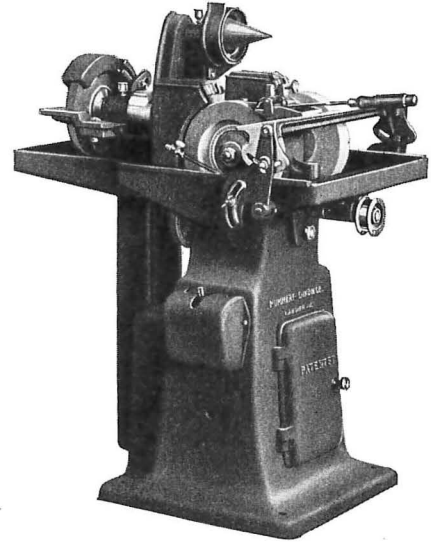
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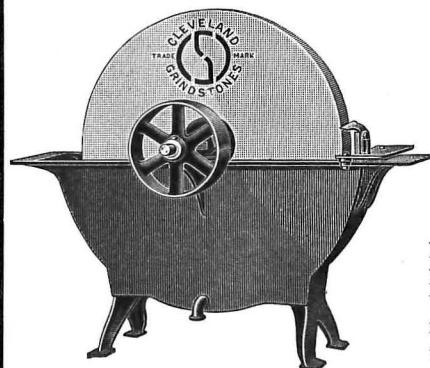
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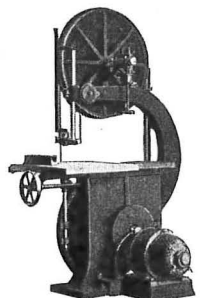
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(Continued from Page XXII)

operation of district vocational offices under the Smith-Sears Rehabilitation Act. Mr. Walter I. Hamilton has been appointed as superintendent of vocational advisement and training in the Smith-Sears Division.

A co-operative system of vocational training has been established at Columbus, O., under which boys between 15 and 18 years may alternate weekly between the Columbus Trade School and an industrial plant. All students will be paid for their work in the shop so that an opportunity is afforded for wage earning while pursuing a trade course.

Boys between 14 and 18 years are to be offered trade training in Ogden, Utah, under a plan to be conducted under the direction of the State Department of Vocational Education, of which Francis W. Kirkham is head. A survey of trades and industries has been made with a view to determining which of these may be successfully taught in the several localities.

Vocational and industrial education for juvenile workers is being considered for Springfield, Ill., under a plan about to be adopted by the school officials and businessmen. The vocational idea is being fathered by Supt. I. M. Allen and E. A. Wridt of the State Board of Vocational Education. The salient points of the plan as Mr. Allen has outlined them, are as follows:

First, to solicit and enroll every child between the ages of 14 and 16 to whom a work certificate is issued to re-enter school and continue until 16. Second, to issue no certificates to children between these ages except where it can be shown that the child is of necessity required to work. The permit will be issued upon condition that the child attend continuation school. Third, a campaign of education to hold all children 16 years and older until the high school course is completed. Such students would then be encouraged to attend colleges or other special schools. Lastly, continuation schools would be provided for children 16 years and older who cannot continue in school.

The present vocational and industrial plan is intended to prevent the loss of large numbers of boys and girls thru the high wages in industrial plants and to take care of those already employed who are there by necessity and who cannot leave their employment to attend school.

The Federal Board of Vocational Education announced on August 7, the following allotments of state aid for the school year 1918-19:

Maine, \$17,920; New Hampshire, \$15,000; Vermont, \$15,000; Massachusetts, \$86,138; Rhode Island, \$19,304; Connecticut, \$31,245; New York, \$226,343; New Jersey, \$62,776; Pennsylvania, \$186,786; Delaware, \$15,000; Maryland, \$31,250; West Virginia, \$29,417; Ohio, \$115,622; Kentucky, \$55,701; Michigan, \$67,539; Indiana, \$64,578; Wisconsin, \$55,843; Illinois, \$137,581; Minnesota, \$49,557; Iowa, \$52,530; Missouri, \$78,775; North Dakota, \$17,808; South Dakota, \$17,708; Nebraska, \$28,014; Kansas, \$39,867; Oklahoma, \$38,655; Montana, \$15,000; Wyoming, \$15,000; Colorado, \$19,273; New Mexico, \$15,000; Idaho, \$15,000; Utah, \$15,000; Arizona, \$15,000; Nevada, \$15,000; Washington, \$27,614; Oregon, \$16,142; California, \$58,021; Virginia, \$48,288; North Carolina, \$51,191; South Carolina, \$36,189; Georgia, \$60,948; Florida, \$18,857; Tennessee, \$51,011; Alabama, \$49,765; Mississippi, \$42,888; Arkansas, \$37,874; Louisiana, \$39,085; Texas, \$91,361.

The co-operative arrangement by which the manual training department of the Racine, Wis., schools and the continuation schools of the city are operated as a single unit has been declared a complete success by a special committee on vocational education.

In Racine, as in other Wisconsin cities, the dual plan of administering vocational schools provides for an entirely separate establishment for the trade and continuation schools under a separate board of education. By a special arrangement the director of the Racine vocational schools is also supervisor of manual training and the teachers of the two types of schools are employed both for the students of the trade and continuation schools and for the high school and upper grades.

The arrangement has made possible an economy during the year 1917-18 of \$10,000, of which \$5,240 were saved in the matter of equipment and \$4,800 in the salaries of teachers.

The committee, which was headed by Mr. A. R. Graham, formerly director of the Racine vocational schools, has declared that the co-operative department has been effective in dignifying labor and also in making it possible for students to learn a trade in its entirety; it has made the instruction in the machine shop of more practical benefit to the pupils thru actual practice on machines while learning principles and processes. It has effected a considerable saving in machinery thru the double service which the shops have made possible and the increased number of pupils which have been accommodated at regular periods. There has been a pleasing co-operative spirit engendered thru the ex-

(Concluded on Page XXVII)

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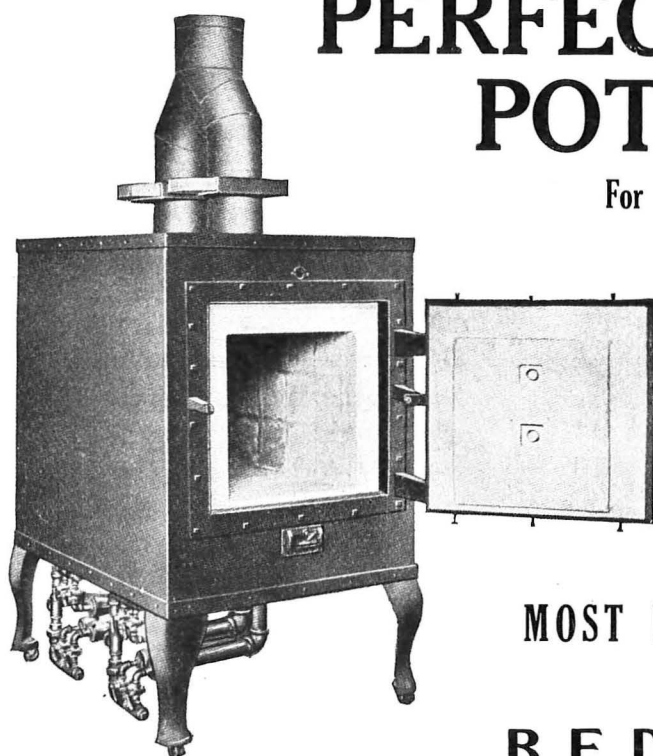
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*(Concluded from Page XXV)*

change of ideas and methods among the teachers and the creation of a common interest in the subjects.

Thru the working of the new system there has come an increased respect for a sensible and adequate education for each student. High school teachers of academic subjects have put more of the practical into their teaching and vocational teachers have emphasized academic training.

*Elkhart, Ind.* During the past summer the boys of the high school manual training classes undertook the work of remodeling classrooms. Space formerly occupied by the cloakrooms was converted into two classrooms. All of the work with the exception of the decorating was done by the students under the direction of Mr. R. T. Guyer, instructor in manual training.

The domestic science centers in the schools of Dubuque, Ia., were opened by the school board in July for a series of demonstrations and practical lessons in the making of war bread and other recipes. The demonstrations had for their aim the utilization of idle equipment in the schools and the rendering of practical service to housekeepers in the form of war breads, cakes and pastry.

A series of five lessons was given on war muffins, cakes, bread and pastry. The enrollment for the entire course in all the centers was 105.

The demonstrations were in charge of three domestic science teachers of the city schools and the girls and women who attended the lectures made the articles under the direction of the instructors.

The work was entirely successful in view of its helpfulness to the women of the city and the evident advantages to be gained from community use of school equipment. Supt. J. H. Harris gave his advice and support to the work.

## THE WAR AND THE SCHOOLS.

A military base hospital and training school for blinded soldiers, sailors and marines has been opened at Roland Park in Baltimore, Md. The hospital has 250 beds, large recreation fields and an extensive acreage in garden tracts. Mr. O. H. Burritt is educational director of the school and Miss Jenny Turner is reconstruction aide.

*The School of Design* of Providence, R. I., has made a survey of work open to crippled soldiers and sailors in an effort to aid in the rehabilitation work conducted by the government.

*The War Department* has asked the board of education at Buffalo, N. Y., for the use of the vocational schools the year round for the training of soldiers in army mechanics. It has been found that the facilities of the Buffalo schools and the courses offered are among the best in the country and the war department desires to keep a minimum of eight hundred men in training until June, 1919.

*Evening classes* in telegraphy and radio work are to be continued thru the summer at Ogden and Salt Lake high schools, the University of Utah and the Utah Agricultural College.

*Santa Barbara, Cal.* A class in radio and buzzer work has been formed at the high school for the benefit of drafted men.

*The Oshkosh Vocational School* at Oshkosh, Wis., has lost four teachers by enlistment and the operation of the draft law. Orin L. Wakeman, instructor in woodwork, who enrolled in the officers' training class, has been commissioned a lieutenant in the U. S. R. Geo. H. Snadden instructor in machine shop; Albert Johnson, instructor in drawing, and Archie Richards, instructor in woodwork, have been called into service.

*Vocational schools* for war training courses are to be continued in 31 cities of Wisconsin as an aid to young men who may be drafted in the immediate future. Of the 2,829 men who have been given instruction in vocational courses, all were within the draft and four-fifths of them have been called into service. The largest number in any course was that in radio and buzzer work with 1,347 men enrolled and the smallest number was represented by three bakers. The largest number of men was the group of seven hundred at Milwaukee and the smallest number was eight at Two Rivers.

*Miss E. E. Sheldon*, supervisor of domestic science for three years at Brainerd, Minn., has been engaged by the Fort Dodge, Ia., school board as director of canning clubs and supervisor of domestic science and arts. Miss Sheldon has been working during July and August with the canning clubs and the girls have a fine showing of fruits and vegetables as a result.

*John A. Klug*, of Yankton, S. D., has been appointed instructor in manual training at Red Wing, Minn.

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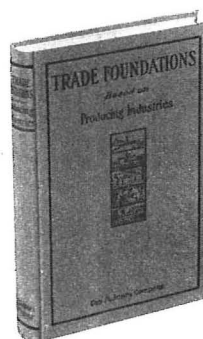
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#### PERSONAL NEWS.

*W. G. Carpenter*, of Wheeling, W. Va., has been appointed director of classes for the instruction of military registrants in the state of West Virginia. Mr. Carpenter will have charge of the organization of new classes and will direct the administration of the entire work.

*Miss Florence Eckert*, of Coshocton, O., has been appointed director of the domestic arts department at Dover, O.

*Ernest Gray*, of Vevay, Ind., has been appointed instructor in manual training at Warren, O.

*M. F. Kavanaugh* has been appointed supervisor of industrial arts at Springfield, Ill., to succeed F. O. Edwards, resigned.

*D. J. MacDonald*, formerly in charge of the trade and industrial teaching in Indianapolis, Ind., has accepted a similar position with the University of Cincinnati.

*Rollie A. Coil*, of Fort Wayne, Ind., has been appointed head of the manual training department at Michigan City.

*Cecil R. Swain*, of Indianapolis, Ind., has been appointed printing instructor in the Junior High School at Fort Wayne. A. G. Cleaver is head of the printing department.

*Herbert Thomas Kenyon* has resigned as director of manual arts at North Attleboro, Mass., to give his entire time to boy scout work in the Malden district of Greater Boston.

*E. L. Heusch*, principal of the Columbus, Ohio, Trade School, has been appointed supervisor of industrial education for Ohio. Mr. Heusch succeeds W. F. Shaw, who has taken up rehabilitation work for disabled soldiers for the government.

*Miss Sarah Canfield*, of Tecumseh, Neb., has been appointed instructor in domestic science in the high school at Omaha, Neb.

*J. R. Cozen*, of Laramie, Wyo., has been appointed chairman of the Committee on Vocational Training and Americanization.

*Mr. John F. Engerson*, who has taught in St. Louis, is now instructor in manual training in Detroit, Mich. Mr. Engerson is author of the Engerson Vocational Class Record.

*Ira S. Griffith* has become professor of industrial education at the University of Illinois. He will have charge of teacher-

training classes of industrial workers in Chicago in addition to regular classes at the university.

*Mr. George F. Buxton*, formerly head of the manual arts department at Stout Institute, has been appointed associate professor of vocational education at Indiana University. Mr. Buxton will be in charge of the teacher-training classes for industrial teachers under the Smith-Hughes law. He will be located at Indianapolis.

*John W. Hoyer*, formerly supervisor of manual arts in Bloomington, Ill., has accepted a position as director of the industrial arts department of the Northern Normal and Industrial School in Aberdeen, South Dakota.

*Mr. George O. Weimer*, of the Stivers Co-operative School, Dayton, O., has resigned to accept a position as instructor of the Moraine Park School at Dayton.

*Mr. F. Theodore Struck*, formerly instructor at the Essex County Vocational School for Boys, West Orange, N. J., has been recently appointed Associated Professor of Agricultural Education at the Pennsylvania State College.

*E. L. Moore*, of Bedford, Ind., has been appointed instructor in manual training at Connersville.

*W. S. Hageman*, of Quincy, Ill., has resigned to enter the aviation service. Walter Brown, of the same faculty, has entered the officers' training school at the University of Illinois.

*Mr. L. P. Whitcomb*, director of industrial education at Oshkosh, Wis., has been re-elected for his sixth term.

Ten out of thirteen instructors in the manual training department at Springfield, Ill., have been called to the colors. Two others, Edgar Schulz and O. W. Hasse, have been summoned for duty.

#### ROLL OF HONOR.

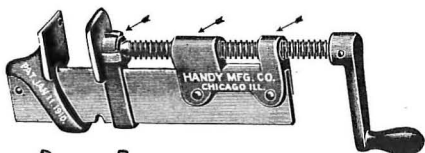
C. C. Williams, McKinney, Tex., National Army.

Boyd Garns, Lanark, Ill., National Army.

R. D. Owens, Salem, O., National Army.

August P. Gompf, instructor in industrial arts, State Normal School, Bowling Green, O., U. S. Radio School, Columbia University, New York.

William V. Winslow, instructor in industrial arts, high school, Sharon, Pa., Walter Reed General Hospital, Washington, D. C.



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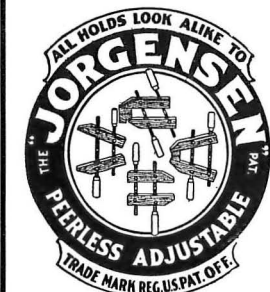
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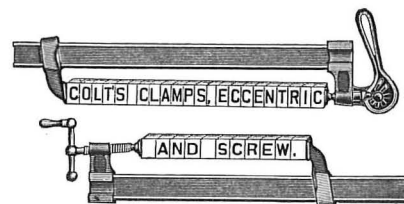
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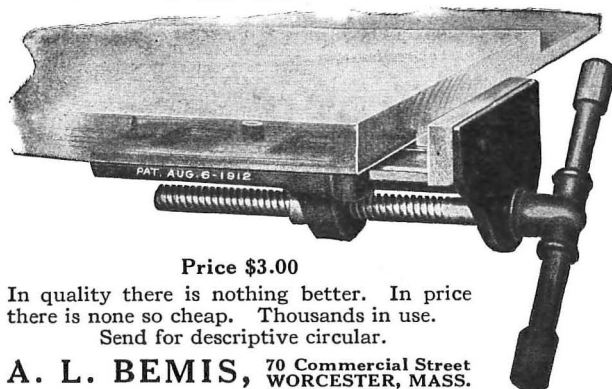


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### A TEXTBOOK IN SHEET METAL.

It is not rare in these days to find that business houses co-operate with schools in preparing teaching material. An instance of such co-operation is the recent completion of a textbook in Sheet Metal Work and Pattern Drafting by Mr. J. S. Daugherty of the Carnegie Institute of Technology.

The first suggestion for this book was made by a manager of the Peck, Stow and Wilcox Company, of Southington, Conn. The book itself was developed, however, at the Carnegie Institute as a result of the author's practical work in training teachers of sheetmetal work. The book is a complete text suitable for continuation and high schools, and trade schools, and has been declared by competent authorities to be the most authoritative work on the subject now on the market.

### AMERICAN HOME ECONOMICS ASSOCIATION REAFFIRMS PLATFORM.

The American Home Economics Association recently held its annual meeting at the University of Chicago and at Hull House, Chicago. The membership of the association is composed of men and women who are interested in improving conditions of living in the home, the institutional household, and the community.

In view of the unusual responsibilities now resting upon the home and the institutional household, in the promotion and maintenance of conservation of health, food, clothing, fuel and other essentials, the association determined to reaffirm its platform in the following statement:

It is voted to work thru the coming year, individually and collectively, in full co-operation with government agencies, to forward the following causes:

I. To establish and maintain instruction in the elements of home management, including the principles of nutrition, the proper choice and preparation of foods, thrift and economy in the use of clothing, fuel, and other household essentials to all girls in the higher elementary grades and in the high schools, at least in the first two years.

II. Inasmuch as the administration of the household is of common interest and importance to both men and women, and the maintenance of the individual away from home also demands an understanding of these matters, to urge appropriate instruction for boys as well as for girls as far as practicable, in matters relative to the welfare and maintenance of the individual of the home.

III. To promote the establishment of departments of home economics in normal schools and colleges; and courses dealing with questions of public health, nutrition and thrift open to all students, both men and women.

IV. To co-operate in the extension of home economics instruction in the conservation of food, fuel, clothing and other household essentials to housewives desiring such assistance.

V. To further, individually and collectively, the campaign for child welfare thru the establishment of courses of instruction in child care and child welfare in schools and colleges, and thru active co-operation with the Children's Bureau.

VI. To aid all community enterprises which extend the ideals of Home Economics or promote the improvement and maintenance of health.

VII. To support and maintain the Journal of Home Economics as a means of extending knowledge of the subject and of promoting thought and discussion.

VIII. To promote research by encouraging and aiding investigations and research in universities, and by meetings local and national, in order that knowledge may be increased, and public opinion informed and advancement made secure by legislative enactment.

IX. To give active support to all legislation, state and federal, which aims to secure any of the ends which we are working to promote.

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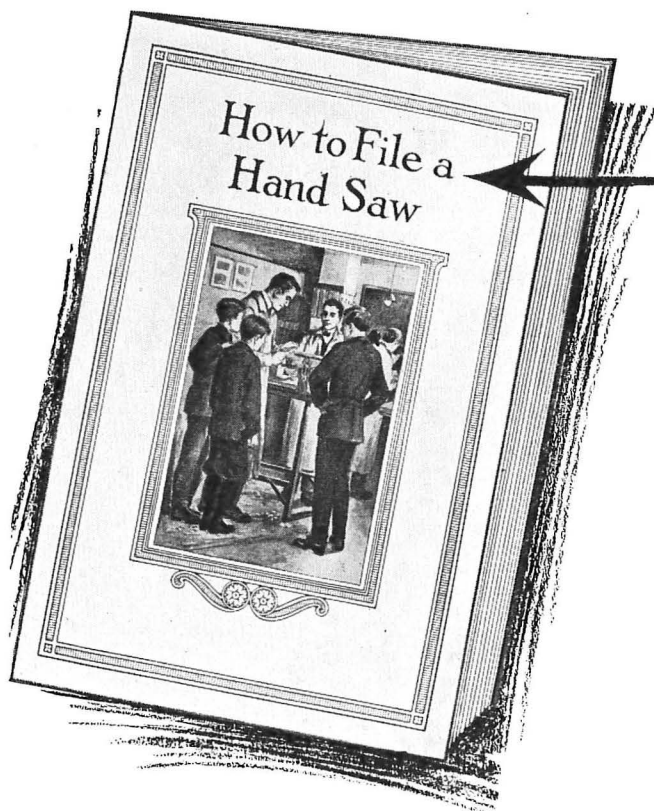
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